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MASSIVE GASTRODUODENAL HEMORRHAGE: A PLAN FOR MANAGEMENT

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IT IS WELL KNOWN that the majority of patients with massive bleeding from the stomach or duodenum will recover on conservative management, while a few will certainly die if they are not treated by operation. The problem is to pick out those who run the risk of dying and operate on them before their condition becomes critical.[3] The determining factor is the rate of bleeding.[2] Those who ooze slowly or who bleed small amounts intermittently can be easily controlled by transfusion and other supportive measures; those who pour out large quantities of blood in a short time are in serious danger unless their bleeding stops promptly and remains stopped.

Four principles are now generally accepted for the management of bleeding from the stomach or duodenum:

1. The blood volume should be restored rapidly and maintained at or near the normal level. It is a wrong principle and dangerous practice to tolerate long periods of hypovolemia on the theory that the resulting hypotension will encourage the bleeding to stop and make it less likely to recur.

2. It is far better during the first 48 to 72 hours after the onset of hemorrhage to keep the stomach empty by continuous suction than to allow it to become distended with blood clot or to increase the distension by feedings.[3]

3. A positive diagnosis should be established as soon as possible. If there is doubt about it, radiographic studies should be carried out at the first opportunity, preferably within 24 hours of admission. One must not overlook the possibility of bleeding from esophageal varices. When this is suspected, a Blakemore-Sengstaken triple lumen tube should be passed. If properly used, this will practically always stop hemorrhage from varices.

4. Emergency operation is mandatory for those who show evidence of rapid bleeding which is either continuing or which recurs after apparent cessation; the decision to operate on these patients should be made within 48 hours after they come to hospital.

In certain other cases of less severe bleeding elective operation may be carried out at any time after admission, e.g. those with previous episodes of hemorrhage, perforation, or intractable ulcer pain, and, possibly, those with gastric ulcers.

With these principles in mind the following program has been worked out for the management of patients with massive gastroduodenal hemorrhage from the moment of their arrival at hospital:

1. Take blood samples for typing and cross-matching, hemoglobin estimation, prothrombin time and clotting time.

2. Start an intravenous infusion with a large needle or a plastic cannula. (If the patient's condition is alarming, start two infusions!) Begin the infusion with 5% glucose in water and, if the patient seems too ill to wait for blood, give up to 1000 c.c. of dextran.

3. Administer morphine in appropriate dosage to alleviate anxiety.

4. Obtain the main facts of the history and carry out a rapid physical examination. Look particularly for enlargement of the liver or spleen, which might suggest portal hypertension.

5. Insert a duodenal tube into the stomach and connect it to a continuous suction apparatus.

6. If the patient seems very ill, insert a retention catheter so that urine volume can be continuously observed.

7. Set up a chart to record the pulse and blood pressure readings taken every 15 minutes and to record the amount and kind of transfusate.

8. Estimate the patient's blood loss by taking into account: (a) The amount of hematemesis or melena. (b) The patient's clinical state. For example, if he is pale, sweating, and his systolic blood pressure is below 90 mm. Hg, he has probably lost at least 1500 to 2000 c.c. of blood. (c) If the hemoglobin level has already fallen, estimate a 500-c.c. deficit in blood volume for each 1.0 g. below normal.[3]

9. Replace the estimated blood loss *quickly* (e.g. 500 c.c. every four to 10 minutes).

10. If the pulse and blood pressure are *not* restored to near normal levels by 2000 c.c. of blood replacement, continue rapid transfusion and pre-

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pare for an emergency operation. Such a patient must still be bleeding rapidly.

11. If the vital signs are restored by the initial rapid transfusions, *continue* blood replacement at the rate of 500 c.c. per eight-hour period.

12. If the patient's condition remains stabilized for a few hours and if the site of bleeding is not known, arrange an emergency radiological examination.

13. If massive bleeding recurs, or if more than 500 c.c. of blood per eight-hour period is required to maintain normal pulse and blood pressure, obtain more blood for transfusion and prepare to operate.[2]

If emergency operation is required, enter the upper abdomen by an adequate opening (for most cases a midline incision from xiphoid to umbilicus). Carry out a rapid but thorough exploration:

(a) *If a duodenal ulcer is found,* make a longitudinal incision on the anterior surface of the antrum and carry it through the pylorus until the ulcer can be visualized. Control the bleeding by direct pressure until a decision has been reached regarding the nature of the operation to be undertaken. If the ulcer appears easily resectable, do either a subtotal gastrectomy (70%) or a vagotomy plus antrum resection.

If the ulcer appears difficult to resect or if the patient is obese or a poor operative risk, extend the gastroduodenotomy to a length of 10 cm. and do a suture ligation of the bleeding vessel(s) with silk or other nonabsorbable material. Now convert the gastroduodenal incision into a pyloroplasty by closing it transversely with a single row of interrupted silk sutures going through serosa and muscularis only. Then carry out a careful and complete vagotomy, and, finally, establish a gastrostomy.[1]

(b) *If a gastric ulcer is found,* do a partial gastrectomy with a Billroth I reconstruction.

(c) *If an esophageal hiatus hernia is found* as the only apparent cause of bleeding, do a vagotomy, repair the hernia, and do a pyloroplasty. Before closing the gastroduodenotomy look carefully for a duodenal ulcer which not infrequently coexists with a hiatus hernia; if one is found, carry out a suture ligation as described in (a).

(d) *If the cause of bleeding is not apparent,* perform a generous gastrotomy extending down into the first part of the duodenum and well up into the stomach. Examine carefully the whole interior of the stomach. If this reveals a duodenal or gastric ulcer, deal with it as in (a) or (b).

If there is a diffuse weeping gastritis, do a subtotal gastrectomy.

If no cause for bleeding is found, carry out a thorough search along the remainder of duodenum and small bowel, then look again in the stomach; if the bleeding lesion is not discovered, close the stomach and continue transfusions. Do not perform a "blind" gastrectomy.

If a midline incision has been used, close it with a running suture of No. 28 stainless steel wire through the linea alba only. A separate peritoneal closure is not required with this incision. The skin may be approximated with either silk or No. 32 wire.

CONCLUSION

In drawing up a program for the management of this emergency problem certain arbitrary decisions have to be made on points about which there may be some difference of opinion, e.g. the use of gastric suction *vs.* early feeding. The evidence for these decisions is not recorded here. It is, however, admitted that other different programs could probably be employed with satisfactory results. As far as the plan described in this report is concerned, it can be said that it works well in practice, gives a positive guide to management at all stages, and provides definite criteria for emergency operation.

REFERENCES

1. FARRIS, J. M. AND SMITH, G. K.: *Ann. Surg.*, **152**: 416, 1960.
2. HOERR, S. O., DUNPHY, J. E. AND GRAY, S. J.: *Surg. Gynec. & Obst.*, **87**: 338, 1948.
3. WEBER, R. A., SCHROETER, M. M. AND RIDDELL, O.: *Ibid.*, **106**: 199, 1958.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

Our Association has at last a JOURNAL. No one can say that our action in this important matter has been precipitate. It has been started after prolonged discussion and consideration and sufficient delay. As to the quality of the JOURNAL, it would be more seemly for others than the speaker to judge. Its possibilities are great, its promises greater. It is a truism to say that it fills a long-felt want. For the first time it is possible to put before the profession of Canada information concerning the work done by Canadians, and by Canadian schools and hospitals. We have now a medium through which our young men, our research men, our experimenters, and our laboratory men can convey to their fellow-workers information as to their hopes, aims, and accomplishments, directly, without filtering through foreign journals. It should be, and it is, a powerful stimulant. We can now stand, through our Association JOURNAL, on our feet. The medical world will look to our JOURNAL for our "weight of metal and size of ball." Our JOURNAL will be compared with others. I do not fear the result of comparative values. We have the stuff. Our young men are second to none, and will, I am satisfied, win for themselves and their country an honourable position among the straight and honest workers of other nations . . . Let us all help and encourage the editor by our liberal support and sympathetic encouragement.—Excerpt from the President's Address: 1911, G. E. Armstrong, M.D., *Canad. M. A. J.*, 1: 591, 1911.

UNUSUAL ECTOPIC PREGNANCY*

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WITH THE great majority of ectopic pregnancies located in some portion of the oviduct, there is a tendency to overlook the possibility of other extra-uterine sites for nidation. Although much less frequent, these must also be considered, and our experience with three unusual types of ectopic pregnancy is presented. These are primary ovarian, abdominal and combined intra- and extra-uterine pregnancies.

OVARIAN PREGNANCY

Ovarian pregnancy is commonly divided into primary and secondary types,[1] the former following true implantation in the ovarian tissue as opposed to a secondary re-implantation after primary nidation elsewhere. The criteria of primary ovarian pregnancy, laid down in 1878 by Speigelberg,[2] are as follows:

1. The tube on the affected side must be intact.
2. The fetal sac must occupy the position of the ovary.
3. The fetal sac must be connected with the uterus by the utero-ovarian ligament.
4. Definite ovarian tissue must be found in the sac wall.

The etiology of the condition is unknown and the incidence is about 1 in 50,000 pregnancies,[3] as compared with 1 in 303 deliveries[4] for all ectopic gestations. The following two cases illustrate this condition.

CASE 1.—The patient, a 25-year-old white woman, gravida iii, para ii, presented with a 10-day history of right lower quadrant pain which was intermittent in nature and had become progressively worse over the week before admission. There was no history of amenorrhea, although her last menstrual period had been abnormally short, with the onset 10 days before admission. On pelvic examination a tender mass was found in the right adnexa. A preoperative diagnosis of twisted ovarian cyst was made, and a right salpingo-oophorectomy was performed. Pathological examination revealed that the specimen was an example of primary ovarian pregnancy. The patient recovered uneventfully and subsequently delivered two full-term pregnancies.

CASE 2.—A 38-year-old Negress with one previous pregnancy, delivered 18 years before, presented with a four-month period of amenorrhea and an abdominal mass compatible with the size of a five-month gestation. Repeated physical and laboratory examinations failed to confirm a normally progressing pregnancy, and laparotomy revealed a left ovarian mass which, because of its gross resemblance to carcinoma, was dealt with radically by total abdominal hysterectomy and bilateral salpingo-oophorectomy. The pathologist made the diagnosis of primary ovarian pregnancy and clearly showed this condition to fulfil the four criteria of Speigelberg.

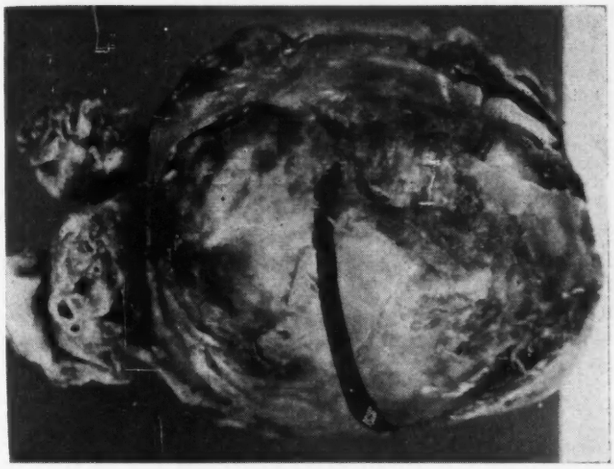

Fig. 1.—Case 1 (ovarian pregnancy). Unopened specimen showing mass.

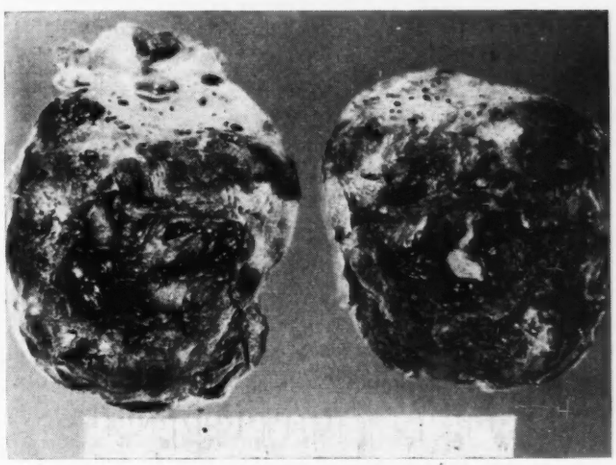

Fig. 2.—Case 1 (ovarian pregnancy). Opened specimen showing pregnancy in ovarian mass.

ABDOMINAL PREGNANCY

Abdominal pregnancy exists when the fetus is found to lie free in the abdominal cavity, enclosed or not by the amniotic sac. These cases are often classified as primary or secondary, depending on the original site of nidation; but whether or not this can be proved depends on the age of the pregnancy at the time of diagnosis. Only when normal Fallopian tubes are found in the first few weeks of the pregnancy, in the absence of a uteroperitoneal fistula, is it possible to confirm a primary abdominal implantation. In this condition, however, the same emphasis is not placed on the original site of attachment, since the diagnosis is most often made at term when the fetus is found to lie free in the abdomen at the time of Cesarean section.

A type of spurious labour usually occurs, and it is not until the lack of progress is noticed that one

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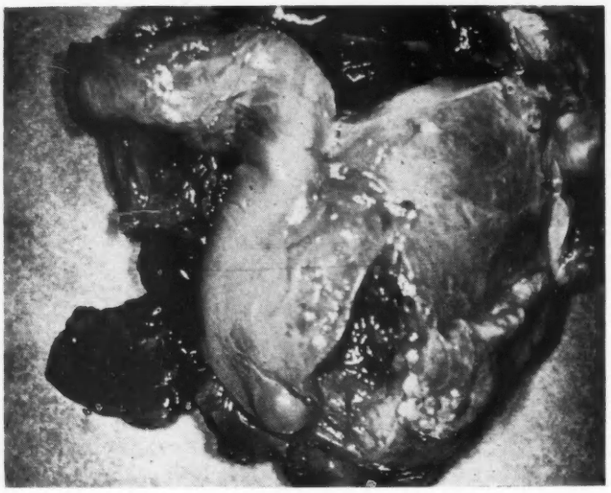

Fig. 3.—Case 2 (ovarian pregnancy). Unopened specimen showing uterus and left ovarian mass.

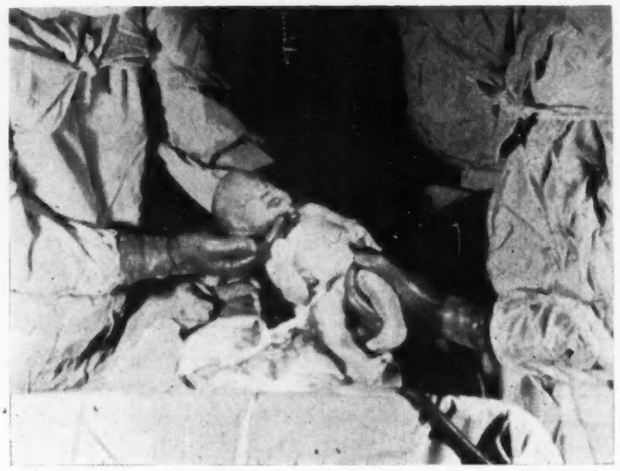

Fig. 5.—Case 3 (abdominal pregnancy). Photograph showing delivery of fetus. Note flattening of left side of forehead and left club foot.

is alerted to the true nature of the condition. Very often, by this time, the fetal heart sounds have disappeared and the mother is showing signs of dehydration and fatigue. Under such circumstances a major surgical procedure, very often complicated by uncontrollable hemorrhage from spontaneous placental separation or from ill-timed attempts at removal, may end in a catastrophe. The complication of sepsis, when the placenta is left *in situ*, further increases the reported high maternal morbidity and mortality.

This case (Case 3 below) illustrating abdominal pregnancy was diagnosed at 18 weeks and the patient was carried to 36½ weeks prior to elective laparotomy. This is an example of successful conservative management following an unusually early diagnosis.

CASE 3.—This 38-year-old white woman, gravida iv, para i, presented at the clinic after 18 weeks of amenorrhea, with the complaint, "this pregnancy does not feel right". She had had some spotting during the second month, which had been treated elsewhere by hormones. Pelvic examination revealed a uterus the size of an eight-week pregnancy, lying anterior and separate from a mass in the cul-de-sac. Because of the presence of this extra-uterine mass in association with a history of prolonged amenorrhea, a single radiograph of the abdomen was taken. This revealed a fetal skeleton, apparently lying outside the uterus. Emergency laparotomy was postponed. Further radiographic studies were performed to confirm the suspected presence of an abdominal pregnancy. A radio-opaque medium was instilled in the uterine cavity as for hystero-salpingography and 300 c.c. of carbon dioxide was injected through the anterior abdominal wall with the patient in steep Trendelenburg position. Radiographic examination then showed the mass thus outlined to be separate from the uterus and, when compared with the films of the previous day, to correspond with the fetal sac.

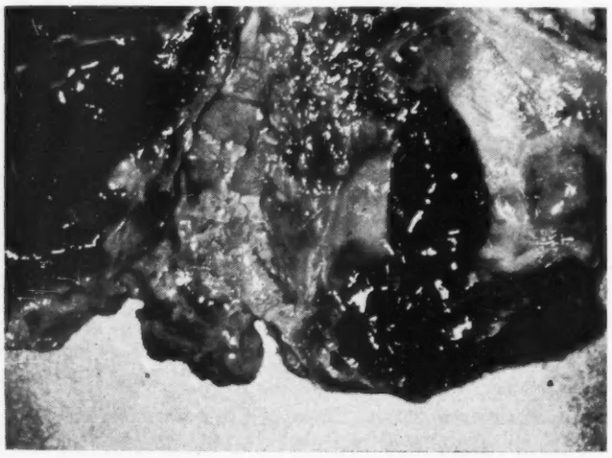

Fig. 4.—Case 2 (ovarian pregnancy). Photograph of opened ovarian pregnancy.

With complete knowledge of her condition and the risks involved, the patient expressed a desire to continue the pregnancy if there was any chance at all of having a live baby. She was therefore followed along closely, first in hospital for a week and then at home, until she reached approximately 30 weeks. During this time she had only one episode of pain, which was associated with defecation. The pain was sharp, upper abdominal in location, and caused her to catch her breath. It was aggravated by deep breathing or coughing. She was re-admitted with a tentative diagnosis of partial placental separation or slight leakage of amniotic fluid. The fetus at this time was found to by lying transversely, the fetal heart sounds were of good quality, and with two days of bed rest, the patient improved and was discharged to her home.

Later, after 3½ weeks of hospital observation, the patient underwent laparotomy at 36½ weeks. A living 4 lb. 3 oz. female infant was delivered uneventfully. The placenta was found to be attached to the right posterolateral aspect of the pelvis and was left *in situ*. The patient did extremely well postoperatively. She was given prophylactic penicillin and streptomycin for a week, and her temperature never exceeded 99° F.

The baby had a pressure deformity on the left side of the fetal skull and left talipes equinovarus. The club foot was treated in plaster with an excellent result. The skull deformity improved spontaneously and after six weeks was no longer evident. Estrogen studies were carried out on this patient post partum because the placenta had been left, and it was found that the estrogen levels fell progressively as in a normal preg-

nancy. The patient resumed normal menstruation six weeks post partum and at that time uterine involution was still progressing. At three months she had a second completely normal menstrual period, and the placental mass extended from just below the umbilicus to the cul-de-sac. It was slightly mobile and resembled an ovarian cyst on palpation. The uterus was of normal size, anteverted, anteflexed, and slightly displaced to the left of the midline. Her subsequent course has been entirely normal, but at one year the placenta persists as a cystic mass.

COMBINED ECTOPIC PREGNANCY

The third interesting type of ectopic pregnancy is the combined intra- and extra-uterine one. The combination of the two conditions is not only rather rare, approximately 1 in 30,000 pregnancies,[5] but provides food for thought regarding the proper diagnosis and treatment of ectopic pregnancies in general.

In many instances it is the practice of gynecologists, when faced with a history of menstrual irregularity and the debatable presence of a mass in the pelvis, to take the patient to the operating room for dilatation and curettage, to be followed by laparotomy if necessary. Obviously, if the condition was or is intra-uterine at the time of operation, diagnosis may be confirmed by the curettage, but it must be pointed out that the gross differentiation of placenta from large amounts of decidua is not easy. If the pregnancy is ectopic, a "dry scrape" often results and then a laparotomy becomes mandatory. Culdocentesis may confirm the presence of intra-peritoneal hemorrhage and is valuable.[6] A pregnancy test is of very little help because, with or without an ectopic pregnancy, it may be positive or negative. All these difficulties may be compounded still further where the combined types of pregnancy might exist. Such has been our experience twice in recent months.

CASE 4.—A white woman was admitted to the Montreal General Hospital with a ruptured ectopic pregnancy for which she underwent immediate left salpingectomy. It was noted at operation that the uterus was enlarged to about the size of a 2½-month pregnancy. She recovered from her operation uneventfully and was discharged, but did not keep her return appointment. She was not seen again until eight months later when she presented with bleeding per vaginam and crampy abdominal pain. She had a term-sized uterus, was in labour and was delivered some four hours later of a 8 lb. 1½ oz. male infant. Mother and child are doing well.

CASE 5.—A 36-year-old white woman, gravida ii, para i, was admitted to the Montreal General Hospital and underwent immediate left salpingectomy for a ruptured tubal pregnancy. The uterus was symmetrically enlarged to the size of a 2½-month pregnancy, but the presence of a patulous cervix led to the conclusion that an intra-uterine pregnancy did not exist. She was discharged to her home in good condition, only to be re-admitted three weeks later with a 48-hour history of bleeding and a 12-hour history of severe abdominal cramps. She subsequently passed tissue and was taken to the operating room for dilatation and curettage.

This case is an example of a combined tubal and intra-uterine pregnancy with a less happy result than the previous one. Fortunately, curettage had not been performed in either of these cases, prior to the laparotomies.

SUMMARY

Three unusual types of ectopic pregnancy are discussed. These are primary ovarian pregnancy, abdominal pregnancy and combined intra- and extra-uterine pregnancy.

Five case reports are presented illustrating these unusual types of eccyesis.

A plea is made for more accurate diagnosis, and culdocentesis is mentioned as a means of detecting intraperitoneal hemorrhage.

REFERENCES

1. BADEN, W. F. AND HEINS, O. H.: *Am. J. Obst. & Gynec.*, **64**: 353, 1952.
2. SPEIGELBERG, O.: *Arch. Gynäk.*, **13**: 73, 1878.
3. SCHMITZ, H. E. AND TOWNSEND, D. E. R.: To be published.
4. SCHUMANN, E. A.: Extrauterine pregnancy, D. Appleton & Company, New York, 1921.
5. SPRAGUE, J. R. AND SPRAGUE, E. A.: *J. Internat. Coll. Surgeons*, **16**: 765, 1951.
6. BEACHAM, W. D., WEBSTER, H. D. AND BEACHAM, D. W.: *Am. J. Obst. & Gynec.*, **72**: 830, 1956.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

Canadians, and I think I may include the English-speaking peoples, do not appreciate the usefulness of useless knowledge. If our people could only be brought to understand the value of useless knowledge as the Germans understand it, we should accomplish more and advance more rapidly. As stated by Sir Norman Lockyer, few realize that English researches of one hundred years ago are the milch cows of foreign nations to-day. Englishmen have been the architects of the world's scientific knowledge. The work of Michael Faraday no doubt appeared useless to his generation, but it is through his work that modern electrical engineering has been made possible, and it is Germany, more than England, which has profited thereby. We, the countrymen of Faraday, make far less electrical power than the Germans. At all times in the world's history it has been a fact that the knowledge that has been milked for commercial purposes has been the useless knowledge of the day. Yet the useless knowledge of to-day is always the useful knowledge of to-morrow. A nation that has produced such men as Faraday, Darwin and Newton, compares well with any other.—Excerpt from the President's Address: 1911, G. E. Armstrong, M.D., *Canad. M. A. J.*, 1: 591, 1911.

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PNEUMONIA FOUND AT AUTOPSY IN INFANTS WEIGHING LESS THAN 750 GRAMS

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DURING the past seven years an intensive study of perinatal mortality has been conducted at the University of Manitoba.‡ The aims, objectives and parameters of this study have been reported previously.

Table I shows the chief autopsy findings in the perinatal deaths at the Winnipeg Maternity Pavilion, which was one of the two hospitals participating in this study.

TABLE I.—MAJOR PATHOLOGICAL FINDINGS IN PERINATAL AUTOPSIES AT W.G.H. MATERNITY PAVILION 1954 - 1960 (INCLUSIVE)

	Perinatal	*Neonatal*	*Stillbirths*
Anoxia	157 (21.2%)	20 (6.1%)	137 (38.9%)
Abnormal pulmonary ventilation	146 (19.7%)	144 (36.6%)	2 (0.6%)
Congenital malformations	108 (14.9%)	55 (13.9%)	53 (15.2%)
Infection	82 (11.1%)	70 (17.5%)	12 (3.4%)
Hemolytic disease of newborn	47 (6.2%)	30 (7.3%)	17 (4.8%)
Trauma	25 (3.4%)	22 (5.6%)	3 (0.9%)
Immaturity	9 (1.2%)	6 (1.5%)	3 (0.9%)
Miscellaneous	13 (1.8%)	12 (3.0%)	1 (0.3%)
Inconclusive	2 (0.3%)	2 (0.5%)	0
Unknown	119 (16.0%)	17 (4.3%)	102 (28.9%)
No autopsy	34 (4.6%)	15 (3.8%)	19 (5.4%)
Total	742	393	349

It is now apparent in most Western countries that 70% of all neonatal deaths occur in infants weighing less than 2500 grams. In close agreement with this was a prematurity rate of 71.1% in the neonatal deaths in the Winnipeg Maternity Pavilion during a seven-year period.

Most studies place their lower weight limit at 1000 grams. The lower limit in the Winnipeg Perinatal Study has been 750 grams, and all statistics in our previous studies and those in Table I relate to infants weighing 750 grams or more. Using this weight criterion, the neonatal mortality rate in the Winnipeg Maternity Pavilion during the last seven years was 14.6 per 1000 live births.

Recently there has been considerable discussion as to an adequate gestational period after which time the infant shall be classified as a birth rather than an abortion. Until recently, most countries have accepted 28 weeks of gestation as the lower limit. However, the use of weights in most studies has often conflicted with the gestational age of the fetus. Thus not infrequently infants who by weight may be 1000 grams or more, are often less than 28 weeks by gestational age.

During 1959 a new set of recommendations was set out in the Vital Statistics Act of Manitoba (amended by Chapter 68 of the Statutes of Manitoba, 1959), wherein a live birth is defined as "the complete expulsion or extraction from its mother, irrespective of the duration of pregnancy, of a product of conception in which, after such expulsion or extraction, there is breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle, whether or not the umbilical cord has been cut or the placenta is attached".

Since the products of all pregnancies are now being included in Manitoba's provincial vital statistics, it was felt that a review of neonatal deaths of infants weighing less than 750 grams might be of value and interest.

Since 1954 careful clinical and autopsy records have been compiled on all neonatal deaths of infants less than 750 grams, born at the Winnipeg Maternity Pavilion. In this group there were 46 infants, the mothers of 36 of whom were multiparas. There was a history of at least one loss or miscarriage in 28; by comparison, for total neonatal deaths of infants greater than 750 grams the figure was 22.4% (88 of 393) among women who had lost one infant during the same period of time.

A history of overt infection in the mother prior to delivery was obtained in four cases. Two of these were considered on clinical grounds to have suffered from influenza. No positive serological studies were obtained. The other two mothers were considered to have suffered from common colds.

The weight-range among the infants was from 255 grams to 749 grams. Thirty-nine were greater than 400 grams. When the major pathological findings at autopsy were reviewed, the following facts emerged.

TABLE II.—MAJOR AUTOPSY FINDINGS IN INFANTS WEIGHING LESS THAN 750 GRAMS

Immaturity	28 cases
Bronchopneumonia	15 "
Congenital anomalies	1 "
Intrapulmonary hemorrhage	1 "
Aspiration pneumonia	1 "
Total	46 cases

Immaturity was the most important ultimate cause contributing to death in this group. Twenty-eight of the infants were in this category. Among these were six in whom there was such a degree of atelectasis that no pulmonary aeration had been achieved and in the remainder the lung structures were simply immature.

Intraventricular hemorrhage was present in 13 cases and was considered by us to be an indication of fetal anoxia.[3] The one case of massive intra-

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pulmonary hemorrhage was also considered to represent intrauterine anoxia.

Aspiration pneumonia, usually considered as part of the so-called "post-maturity syndrome", was seen in an infant who weighed 664 grams.

Congenital anomalies were present in only one instance, in an anencephalic fetus weighing 624 grams.

The most striking finding was the presence of pneumonia in 15 cases. Table III indicates some of the features of these 15 cases.

TABLE III.—FINDINGS IN CASES OF PNEUMONIA IN INFANTS UNDER 750 GRAMS

No.	*Weight (grams)*	*Type*	*Amnionitis*	*Culture*	*Hours lived*
1	470	Acute	+	N.D.*	2
2	709	"	+	Virus studies negative	2 (Mat. flu.)
3	737	"	+	Negative	1¼
4	567	"	+	Negative	2
5	595	"	+	Positive (mixed growth)	19
6	737	"	—	Positive (*Staph. aureus*)	17
7	482	"	+	Negative	2
8	595	"	+	Negative	6
9	539	"	+	Negative	12
10	709	"	+	N.D.	20
11	624	"	+	N.D.	20
12	624	"	—	N.D.	21
13	397	"	+	N.D.	2
14	664	"	+	Negative	6
15	610	Interstitial	—	Positive (*Staph. aureus*)	109

*N.D.—not done.

It will be seen that all except one were considered to have acute bronchopneumonia. The diagnosis rested primarily on the microscopic assessment. Distribution of the inflammatory infiltration in these cases was as described in a previous paper.[4] Each of the cases was reviewed independently by two pathologists. Postmortem cultures were taken in nine cases and were positive in only three of these infants. In one a mixed growth was obtained and it was felt to be due to contamination. In a single infant with interstitial pneumonia, who lived 109 hours, *Staph. aureus*, coagulase-positive, was grown.

In 12 of the 15 cases amnionitis was present and in several cases there was evidence of inflammation of the umbilical cord including its vessels.

COMMENT

In the majority of perinatal studies, infection as a cause of death has percentage values ranging from 5 to 13%.[3, 5, 6] In a study reported by Nesbitt[7] it was stated that six of 76 infants weighing between 500 and 999 grams had intrauterine pneumonia. In the Winnipeg Maternity Pavilion, infection as a major pathological finding at autopsy was present in 17.8% of all the neonatal deaths in infants weighing more than 750 grams.

TABLE IV.—AUTOPSY INCIDENCE OF PNEUMONIA BY WEIGHT OF INFANTS

Group	*Weight (grams)*	*Total neonatal deaths*	*No. with pneumonia*	*% pneumonia*	
Immature	Under 750	46	15		32.6
Premature	750 - 1000	47	6	12.8	13.9
	1001 - 1500	96	13	13.5	
	1501 - 2500	137	21	15.3	
Mature	2501 - 4000+	113	13		11.4
	Total	439	68		

Table IV compares all groups of cases by weight.

Although the total number of cases (46) is small and a percentage comparison is not strictly valid, the incidence of pneumonia in the infants weighing less than 750 grams is very striking.

Whereas there is no significant difference in the incidence of pneumonia at autopsy in the groups weighing more than 750 grams, there is a significantly increased incidence of pneumonia in the infants weighing less than 750 grams (Chi square = 10.08894; d.f. = 1.0).

The pathogenesis of neonatal pneumonia is in most cases obscure. While it is well known that many bacteria and viruses will cross the placental barrier, there are few observations relating maternal infection in the antenatal period with acute pneumonia in the neonate. A careful scrutiny of the mother's history will be necessary to establish whether there is such a relationship. It will be very difficult to assess the effect of any minor maternal illness and the part it may play in infecting the fetus. Only four mothers in this series had any evidence, clinically, of infection.

Failure to obtain positive bacteriological and viral postmortem cultures in this series has been noted. Heart blood cultures taken immediately at the time of death of the infant in addition to autopsy cultures did not increase the positive results. However, Blanc[8] and Benirschke and Clifford[9] believe that examination of the placenta and frozen section of the cord are of greater value in demonstrating the presence of infection in the newborn infant.

While Blanc suggests that such infection is blood-borne, Cox[10] in reviewing 102 cases of midterm fetal loss, suggests that an incompetent cervix was the common factor in most cases, and because of an incompetent cervix he thought that there was a greater danger of ascending infection. He considered that this view was supported by the fact that in his series amnionitis was the most common finding at autopsy.

In our series of cases, 28 of the 46 were offspring of women who had suffered a previous loss as compared with 80 (22.4%) of 393 cases.

Several unanswered questions appear to be raised by this small series. Firstly, does a mother who suffers mild antepartum infection affect her

fetus to the extent that premature labour occurs? Secondly, are these the group of women who because of an incompetent cervix allow an ascending infection to occur more readily and so affect the tiny fetus? Thirdly, is the fetus at this age more susceptible to blood-borne infection to which he may be exposed, as has been suggested by Blanc?

It is reasonable to suppose that further review of such cases may give us some insight into the cause of death of these premature infants.

SUMMARY

A review is made of the major pathological findings in infants weighing less than 750 grams at birth.

Acute pneumonia was one of the commonest autopsy findings in these tiny babies. It was also noted that there was a significantly higher incidence of pneumonia in these cases compared with that in the more mature infants weighing more than 750 grams.

REFERENCES

1. BRIGGS, E. J. N. *et al.*: *Canad. M. A. J.*, **75**: 586, 1956.
2. DEPAPE, A. J. *et al.*: *Ibid.*, **77**: 963, 1957.
3. MITCHELL, J. R. *et al.*: *Ibid.*, **80**: 796, 1959.
4. BRIGGS, J. N. AND HOGG, G.: *Pediatrics*, **22**: (Part I) 1958.
5. MACGREGOR, A. R.: *Arch. Dis. Childhood*, **14**: 323, 1939.
6. KOHL, S. G.: Perinatal mortality in New York City, Harvard University Press, Cambridge, Mass., 1955.
7. NESBITT, R. E. L.: Perinatal loss in modern obstetrics, F. A. Davis Co., Philadelphia, 1957.
8. BLANC, W. A.: *Clin. Obst. & Gynec.*, **2**: 705, 1959.
9. BENIRSCHKE, K. AND CLIFFORD, S. H.: *J. Pediat.*, **54**: 11, 1959.
10. COX, J. K.: *Obst. & Gynec.*, **17**: 54, 1961.

SOFT TISSUE FIBROSARCOMA

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SOFT TISSUE tumours are not uncommon and many are benign and of no serious consequence. A fibrosarcoma in its earlier growth phase often presents as an innocuous nodule. Indeed, it may grow very slowly and progress locally in a fairly indolent form during this earlier phase. However, it may begin to grow rapidly after an inadequate attempt at removal. When this phase is ultimately reached, there are few neoplasms that are more malignant or that will kill with greater certainty.

Fibrosarcomas are best treated by complete surgical excision. Inadequate excision in the initial treatment is a major reason for failure. Far too often a patient has a locally recurring soft tissue fibrosarcoma, and ultimate wider dissemination, who should have had an initial wide *en bloc* removal of the neoplasm, a procedure which gives a much higher "cure rate" than any other method or combination of methods.

The present series of 44 cases of fibrosarcoma are from the records of the Montreal General Hospital for the period 1930-1955; this long period enabled use of the criterion of a minimal period of five years' follow-up. In each case a pathological diagnosis was obtained.

Relation to Age and Sex

Soft tissue fibrosarcomas do not appear to have any predilection for age or sex. There were 24 males and 20 females; the youngest and the oldest patients were women aged 18 and 81 years respectively. The distribution in the various age groups was fairly uniform, as can be seen in Table I.

TABLE I.

Age	*Male*	*Female*	*Total*
10 - 19	—	1	1
20 - 29	3	4	7
30 - 39	2	4	6
40 - 49	4	5	9
50 - 59	6	1	7
60 - 69	6	2	8
70 - 79	3	2	5
80 - 89	—	1	1
	24	20	44

Clinical Picture

The etiology of these tumours is obscure. Trauma is often mentioned by the patient as a contributing factor. There has been very little clinical or pathological evidence to substantiate this. Four patients in this series (Cases 6, 8, 10 and 15) mentioned trauma specifically. One patient (Case 15) had a previous gunshot wound at the site of the tumour.

Previous irradiation for another pathological condition was recorded in the histories of two patients (Cases 11 and 16) fifteen and six years earlier, respectively.

The history is usually that of the development of a small painless lump which gradually increases in size and may later become painful when there is encroachment on nerves or other vital structures. In this group, 50% of the patients had symptoms and signs for six months or less. In the remaining 50%, the duration ranged from six months to twenty years.

The tumour is usually in an extremity. The lower extremities are more often the site of origin, but in our series the tumours were found also on the upper extremities, thorax or abdomen.

Pathological Features

Fibrosarcoma is by far the commonest form of soft tissue sarcoma, occurring in 403 instances in 1349 malignant mesenchymal tumours recorded by

*From the Tumour Clinic of the Montreal General Hospital.

Case No. and name	*Age and sex*	*Site*	*Size*	*Complaint*	*Treatment*	*Result*
1 CA	55 M	Lat. dorsi muscle	?	Swelling	1. Local excision 2. Radical excision	Died of tumour 3 years
2 VI	18 F	Soleus muscle	?	Pain, 2 years	1. Biopsy 2. Local excision 3. Radical excision	Died of tumour 16 years
3 DR	53 M	Temporalis muscle	4 x 5 cm.	Pain and swelling, 2 years	1. Biopsy 2. Excision 3. Radiation	Died of tumour 6 months
4 SH	39 F	Biceps muscle	5 x 3 x 3 cm.	Pain and swelling, 2 months	1. Local excision 2. Shoulder disarticulation	Alive and well 29 years
5 RE	55 M	Upper 1/3 thigh	4 x 5 cm.	Swelling, 8 years	1. Local excision 2. Attempted radical excision	Died of tumour 1 year
6 McM	46 M	Soleus muscle	8 x 7 cm.	Trauma and swelling	1. Biopsy 2. Stokes-Gritti amputation	Died of tumour 1 year
7 MA	27 M	Pectoral muscle	6 x 8 cm.	Pain and swelling, 6 months	1. Biopsy 2. Radiation	Died of tumour 3 years
8 ST	47 M	Leg muscle Gastrocnemius muscle	5 x 5 cm.	Trauma and pain	1. Incision and drainage 2. Local wide excision (radical)	Died *free* of tumour 15 years
9 MA	63 M	Leg muscle	4 x 5 cm.	Swelling, 30 years	1. Local excision 2. Radiation	Died of tumour 1 year
10 LA	28 M	Thigh muscle	16 cm. plus inguinal nodes	Injury, pain and swelling—5 weeks	1. Incision and drainage 2. Local excision 3. Radiation	Died of tumour 1 year
11 McL	37 F	L. cheek secondary to radiation epilation—15 years	4 x 3 x 3 cm.	Swelling, 7 months	Exeision 3 x in 2 years and radiation and grafting.	Alive and well 20 years
12 PE	66 F	R. leg muscle	Swelling	Swelling, 2 years	Local wide excision (radical)	Alive and well 8 years
13 LE	22 F	Arm	2 x 3 cm.	Swelling, 3 weeks	1. Local excision x 4 2. Amputation 3. Pulmonary lobectomy for metastasis	Died of tumour 10 years
14 JA	54 M	L. leg	?	Many years. Swelling groin—2 months	1. Biopsy and radiation	Died of tumour 2 years
15 PO	65 M	R. tibial region	25 years after war wound. 3 cm. primary in scar	Groin lumps, 1 year	1. Excision 2. Radiation	Died of tumour 6 years
16 BR	73 M	Neck muscles and nodes	Diffuse and secondary to radiation 6 years previously for lip cancer	Swelling, 1 year	1. Radiation 2. Excision	Died of tumour 1 year
17 GR	29 M	Spermatic cord	Large lump, 6 cm., in L. groin	Few months	1. Local excision 2. Radiation	Died of tumour 1 year
18 KN	52 M	Frontal scalp	2 cm.	Swelling, 2 months	1. Local excision 2. Local wide excision	Alive and well 3 years
19 CA	71 M	Neck	2 x 3 cm.	2 months	1. Local excision 2. Radical neck dissection 3. Radiation	Died of tumour 1 year
20 WA	53 M	R. thigh	6 x 8 cm.	Swelling, 4 days	1. Local excision 2. Radiation	Died of tumour 6 years
21 HO	71 F	Nose	Submucosal nodule	Discomfort, 2 years	1. Excision 2. Radiation	Died of tumour 6 years

Case No. and name	*Age and sex*	*Site*	*Size*	*Complaint*	*Treatment*	*Result*
22 SC	81 F	Nose	Submucosal nodule	Discomfort, 3 months	1. Wide excision 2. Radiation	Died free of disease 5 years
23 AX	33 M	R. thigh	4 x 5 cm. nodes in groin	Swelling	1. Local biopsy 2. Palliative radiation	Died of tumour 2 years
24 LO	34 F	R. pectoral muscles	4 x 5 cm.	Few months	1. Local excision 2. Rt. forequarter (after pulmonary met. present) 3. Radiation	Died of tumour 1 year
25 ST	65 M	L. thigh	2 x 3 cm.	Swelling, 9 years later pain	1. Local excision x 12	Died of tumour 33 years
26 BR	67 M	R. calf	7 x 4 cm.	Pain, 2 months	1. Biopsy and mid-thigh amputation 2. Attempt radical hip disarticulation for stump recurrence, tumour in aortic lymph nodes	Died of tumour 1 year
27 PA	65 M	L. sartorius muscle	7 x 10 cm.	Swelling, 3 months	1. Local excision 2. X-ray	Died free of disease 1 year
28 BE	42 F	R. trapezius muscle	4 x 5 cm.	Swelling, 1 year	1. Local excision 2. Local wide excision, radical 3. Radiation	Alive and well 8 years
29 EA	63 F	R. pectoral muscle	4 cm.	Pain and swelling, ? duration	1. Incision and drainage 2. Radical mastectomy 3. Multiple local excisions	Died of tumour 6 years
30 LE	29 F	R. scapular region	4 cm.	Swelling, 5 years	Local wide excision (radical)	Alive and well 6 years
31 BR	79 F	R. sub-scapular region	12 x 15 cm.	Swelling, 6 months	1. Partial excision and radiation	Died of tumour 1 year
32 LI	48 M	L. infra-spinatus muscle	8 x 4 cm.	Swelling, 6 weeks	1. Local excision x 3 2. Local wide recurrence 3. Radiation	Died of tumour 2 years
33 LO	31 F	Splenius capitus muscle	3 x 2 cm.	Swelling, 6 months	Local wide excision (radical)	Active—Alive and well when last heard from
34 WA	22 F	Erector spinæ muscle	5 x 4 cm.	Swelling, 2 weeks	Local wide excision (radical)	Alive and well 6 years
35 CR	33 M	Ant. chest wall fascia	?	Swelling, 10 months	1. Local excision x 2 2. Local wide excision	Died of tumour 3 years
36 PA	46 F	L. buttock	10 x 5 cm.	Swelling, 2 months	Local wide excision (radical)	Died of tumour 2 years
37 AS	40 M	Lat. thigh	?	?	1. Local excision x 2 2. Radical excision	Alive and well 6 years
38 CO	22 F	R. leg	2 x 3 cm.	2 years	1. Local wide excision 2. Radical excision	Died of tumour 1 year
39 CO	69 M	Ant. chest wall	10 cm.	1 year	None	Died of tumour 1 year
40 SM	44 F	L. back	3.5 cm.	Swelling, 15 years	1. Local excision 2. 11 re-excisions in 5 yrs.	Survived 5 yrs., tumour recurred, and died
41 SH	50 F	Extradural L. temporal fossa	10 cm.	Pain, 6 months	Partial excision and radiation	Died of tumour 1 year
42 CA	71 M	L. Thenar eminence	?	?	Biopsy (refused treatment)	Presumed dead ?
43 KA	43 F	Dorsum R. foot	?	?	Radical excision	Alive and well when last heard from 2 yrs. +
44 CA	42 F	R. breast	?	?	Radical mastectomy	Alive and well 12 years

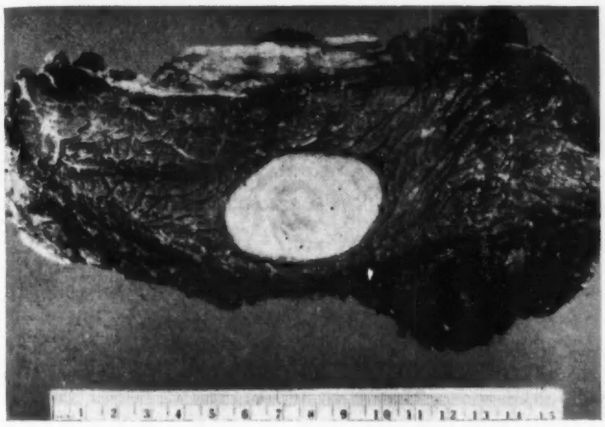

Fig. 1.—Fibrosarcoma of thigh muscle. Note the sharp circumscription apparent in the gross appearance of the tumour.

Stout.[1] In his series liposarcomas were second in frequency with 262.

It is a malignant tumour of fibroblasts, that is, of elongated spindle cells, between which there is

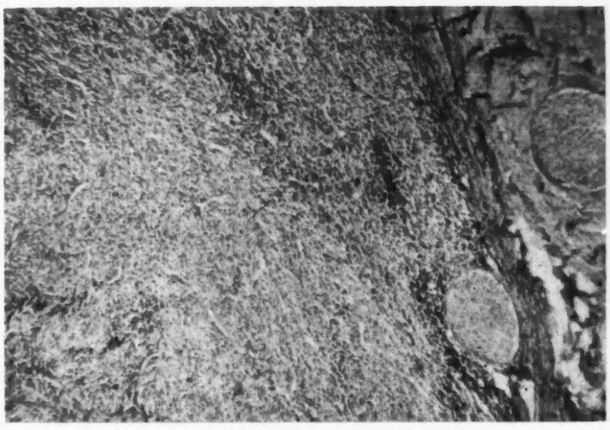

Fig. 2.—Microphotograph of the tumour in Fig. 1 to show circumscribed margin which is nevertheless invasive and has incorporated a nerve bundle. × 35.

a framework of argyrophilic reticulin fibrils and a greater or lesser amount of collagen. They usually are dense, tough, grey neoplasms, a common characteristic of which is a disalarming apparent

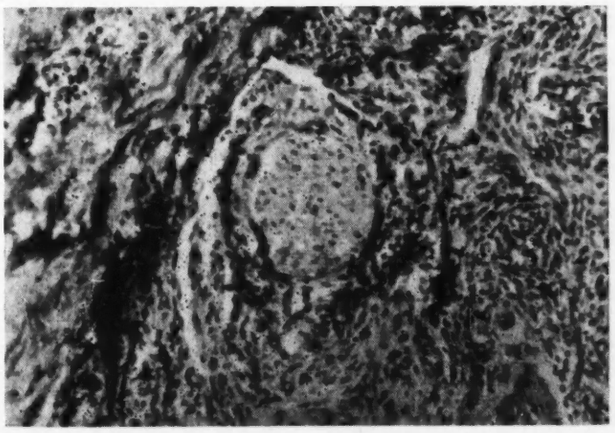

Fig. 3.—Microphotograph of the tumour in Fig. 1 to show the nerve bundle enveloped in the sarcomatous tissue. × 100.

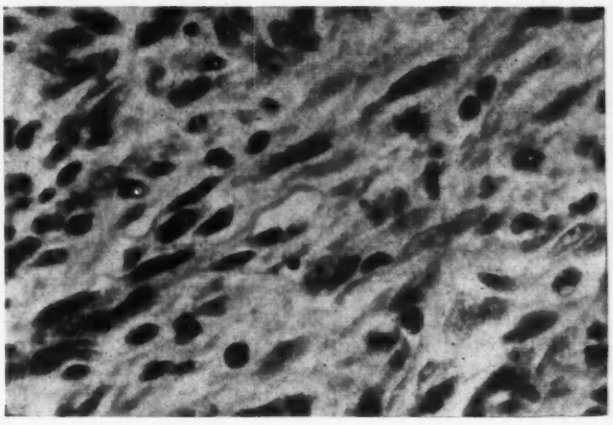

Fig. 4.—Microphotograph of the tumour in Fig. 1 to illustrate the malignant, well-differentiated, spindle cell neoplasm. × 420.

circumscription of the tumour within the tissue of origin. Indeed, the surgeon often falsely reports the tumour as encapsulated, and this leads him to believe that he is dealing with a benign tumour (see Figs. 1, 2, 3 and 4); consequently he performs a close dissection appropriate for a benign tumour. However, microscopic examination reveals that the tumour margin is an aggressive, invasive one in spite of its gross circumscribed appearance, and microscopic satellite nodules or extensions may even be seen well beyond the visible tumour limits. This may well explain the frequency of local recurrences after local excision.

It will be found that the majority of fibrosarcomas occur in a well-differentiated form—76% of the soft tissue fibrosarcoma in Stout's series. That is to say, mitoses are not particularly numerous, the neoplastic cells are fairly uniform and there is considerable intercellular reticulin and often collagen. They tend to be local neoplasms without metastases, but with a strong tendency to local recurrence: whereas the less common poorly differentiated form with frequent mitoses, more scant reticulin, a high degree of cellularity and nuclear pleomorphism, will frequently show metastases and be associated with a very high recurrence and death rate.

The soft tissue fibrosarcomas occur mainly in the subcutaneous, muscular and tendinous tissues. That originating in the skin, and known as dermatofibrosarcoma protuberans, well exemplifies the best-differentiated form and has a relatively benign course. Those of endosteal or periosteal origin will not be considered. It would appear that those fibrosarcomas originating in fields of soft tissue post-radiation retain a locally aggressive malignant characteristic.

TREATMENT

A pathological diagnosis must always be made before definitive treatment is instituted. Many pathologists strongly prefer that a pathological diagnosis in the field of soft tissue sarcoma be based on paraffin rather than on frozen section, before a

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definitive radical surgical procedure be undertaken; in other words, that it be based on the most certain foundation. For example, there may be considerable difficulty in distinguishing between a reparative process and fibrosarcoma, or between benign fibromatosis and fibrosarcoma, or between some forms of liposarcoma and fibrosarcoma. The definitive treatment for each of these conditions may be quite different.

Once the diagnosis has been established, radical excision of the lesion is recommended. This excision should include the muscle and fascial planes from which the tumour may arise, as an *en-bloc* removal. The entire muscle belly from origin to insertion should be excised down to the underlying bone. If, when such removal is performed, the function of the limb is seriously impaired, amputation is done in preference, the site of amputation being determined by the tumour origin. Regional node dissection is not as a rule carried out unless the *en-bloc* removal includes the node-bearing area or palpable lymph nodes are present.

In the present series of 44 patients, 22 were primarily treated by local excision. In this group of 22, the tumour recurred locally in every case. These local recurrences were then treated in one of several ways: (1) one or more local re-excisions, (2) radical excision, (3) irradiation. This further treatment saved five patients of the 22. Table II summarizes this information.

TABLE II.

Local excision as primary treatment— Number of patients			22
Alive and well	5	Died from tumour	17
Additional therapy		*Additional therapy*	
1. Radical excision	2	1. Radical excision	6
2. Multiple re-excision	1	2. Multiple re-excision	4
3. Irradiation	2	3. Irradiation	7
Total	5	Total	17

The reasons for the inadequate primary treatment were not always clear. Some of these patients were treated elsewhere and when the malignant nature of the tumour became evident they were referred to the Montreal General Hospital for further treatment. In a few cases, radical excision or amputation was recommended but was refused by the patient, until massive local recurrences or distant metastases rendered the condition inoperable and incurable.

Irradiation did not appear to have much effect on the course of the disease except in two patients.

TABLE III.

Radical excision as primary treatment—No. of patients			13
Alive and well	7	Died	5
Died free of disease (15 years later)	1	Additional Treatment	2
	8	1. Attempted hip disarticulation	1
		2. Multiple excisions or recurrences	1
		Total	2

Radical excision, as described above, was performed as the primary treatment in 13 patients. Eight of these are alive and well or have died free of tumour after surviving five years or more.

A summary of the data is presented in Table III.

The following are several illustrative cases in which radical excision was carried out.

CASE 4.—A 39-year-old white woman had noted pain and swelling in her right biceps muscle for two months. On admission, there was a mass 5 x 3 x 3 cm. in the right biceps. This was treated primarily by local excision followed by disarticulation of the arm at the shoulder joint. This patient has survived 29 years and is alive and well (see Fig. 5).

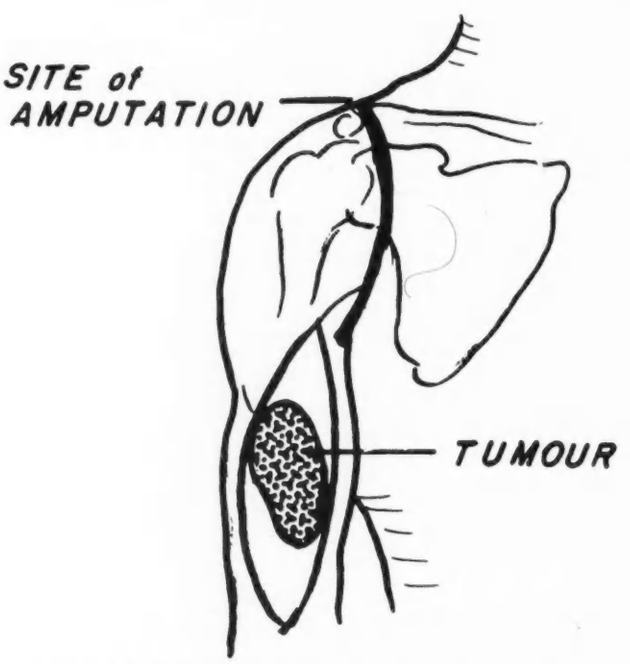

Fig. 5.—(Case 4) Note the site of the tumour with its primary local excision, followed later by disarticulation.

CASE 8.—This 47-year-old man presented with a history of an injury followed by pain in the left calf several months before admission. Shortly after the onset of pain in the calf, a swelling appeared in the region of the lateral gastrocnemius muscle. The lump measured 3 x 5 cm. A biopsy was taken and following confirmation of the diagnosis of fibrosarcoma, radical excision of the lateral head of the gastrocnemius and underlying soleus muscle was performed. This patient lived 15 years and died free of tumour (Fig. 6).

CASE 30.—This 29-year-old woman had had a swelling over the right scapular region for five years. The lump was 5 cm. in its greatest diameter. The tumour was removed by wide local excision and the patient was alive and well six years later.

CASE 26.—A 67-year-old man experienced the sudden onset of pain and swelling in the right calf two months prior to coming to the hospital. On admission, there was an 8 x 3 cm. swelling in the right calf. This was treated by mid-thigh amputation, after a preliminary biopsy which demonstrated the presence of a fibrosarcoma.

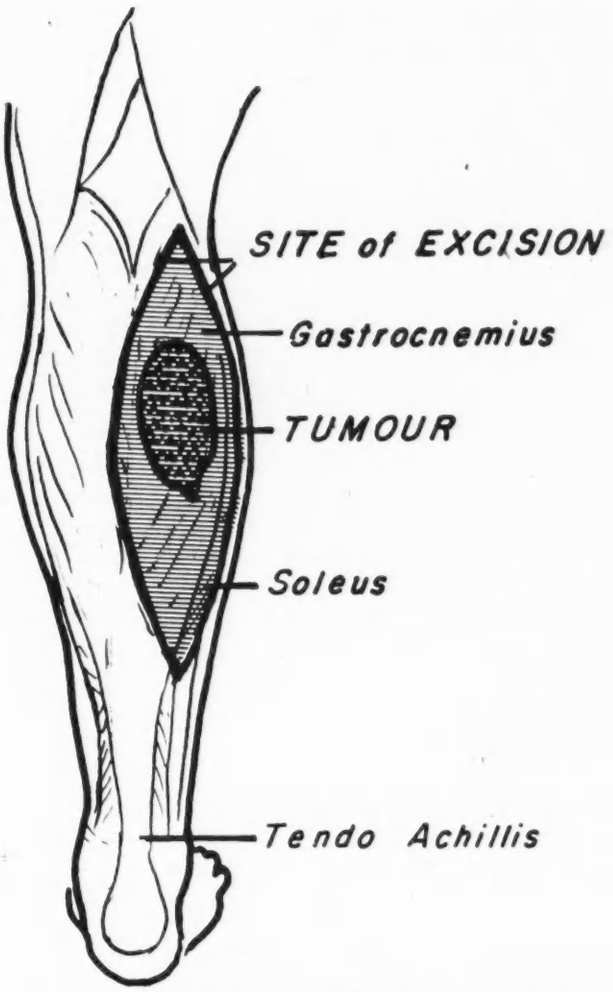

Fig. 6.—(Case 8) The site of the tumour in the gastrocnemius with an outline of the excised area is demonstrated.

Within three months of the amputation there was local recurrence in the stump. Disarticulation of the limb was abandoned when retroperitoneal lymph node spread was demonstrated. The patient died within a year of widespread metastases (Fig. 7).

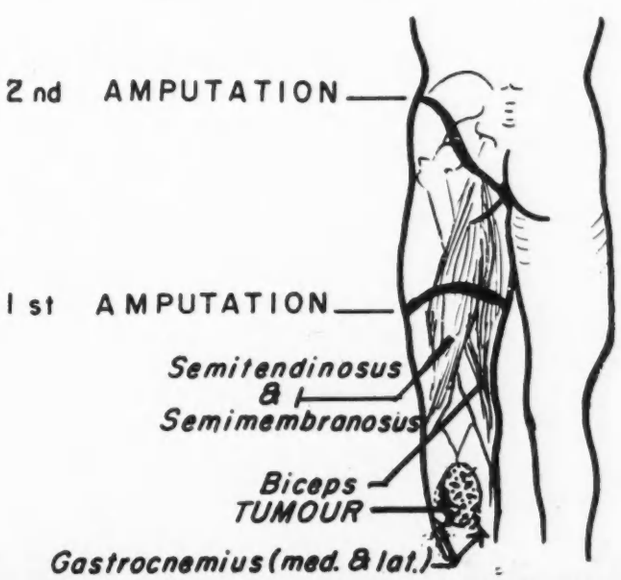

Fig. 7.—(Case 26) The site of the tumour in the calf is demonstrated. The mid-thigh amputation is shown and the site of the attempted disarticulation is noted.

CASE 28.—A 42-year-old woman had a one-year history of weakness, a weight loss of 10 lb., and an enlarging lump in the right posterior portion of the neck in the region of the trapezius. The lump was excised and was found to be a fibrosarcoma. A second more radical excision was carried out, removing the upper portion of the trapezius, rhomboid minor and part of the rhomboid major, splenius capitis, levator scapular, and the spinous processes of T2 and 3. During the convalescent period she was given a course of x-ray treatment. The patient is alive and well eight years later (Fig. 8).

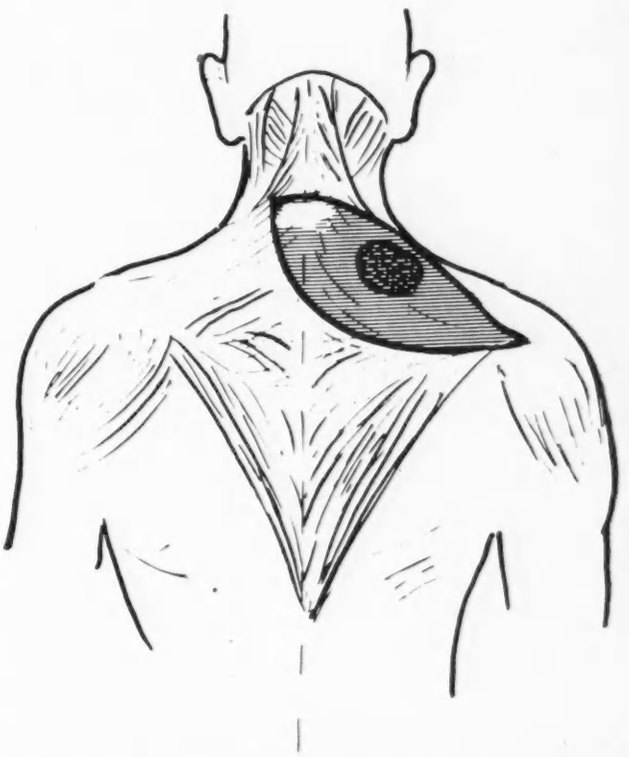

Fig. 8.—(Case 28) The fibrosarcoma of the right trapezius is shown with an outline of the anatomical area of excision.

Surgery was not used in the treatment of seven patients; initial biopsy was followed by irradiation. Six died from the tumour.

TABLE IV.—BIOPSY AND X-RAY TREATMENT

Died of tumour	
Case 7 Died of tumour	3 years
" 14 " "	2 "
" 16 " "	1 year
" 23 " "	2 years
" 31 " "	1 year
" 43 " "	1 "
Died free of disease	
Case 22 Died free of tumour	5 years

The total of 44 cases in this series is completed by 2 in which treatment was refused.

DISCUSSION

This series of 44 is too small to allow valid statistical conclusions, but the results of treatment would appear to favour radical excision, this group showing prolonged survival.

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A major problem confronting the surgeon is how radical the operation should be to ensure cure. It is almost impossible to lay down definite criteria apart from those mentioned, namely that the tumour and the fascial plane of origin and adjacent muscle should be removed completely. When the tumour is adherent to important blood vessels which cannot be safely excised, arterial and venous grafts should be available for use.

When the situation of the tumour is such that when a radical excision is done a limb is rendered functionless, amputation should be performed. This is particularly true in the case of patients with fibrosarcoma in axillary or deltoid regions.

New modes of treatment, such as the systemic use of anticancer drugs or regional perfusion of isolated areas containing fibrosarcoma, may have a place in the surgeon's armamentarium. These methods were not used in any patients in this series because of their unavailability during this earlier period.

SUMMARY AND CONCLUSIONS

A review of the treatment and results achieved in 44 cases of soft tissue fibrosarcoma is presented, together with a discussion of surgical management of this neoplasm. A plea is made for adequate pathological diagnosis with subsequent careful planning of an adequate definitive operation. The surgical procedure should include radical excision of the tumour together with the muscle and fascial planes in which it occurs.

REFERENCE

1. STOUT, A. P.: Tumours of the soft tissues. Atlas of tumour pathology, Section II, Fascicle 5, Armed Forces Institute of Pathology, Washington, D.C., 1953.

SPECIAL ARTICLE

PEDIATRIC TRAINING TRENDS IN THE OLD WORLD AND THE NEW*

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THE SPECIALTY of pediatrics, like the children whom it serves, is a youthful specialty, and is still growing and developing. The lines on which it has so far developed have naturally been influenced by its close contacts with its English-speaking friends, both in the U.S.A. and across the Atlantic. As the path to be taken by pediatrics in this country is still not finalized, it seemed that, in planning our future course, we might well look back and compare and contrast the development of pediatrics in this country, the United Kingdom and the United States.

The father of American pediatrics was, oddly enough, a German refugee, Abraham Jacobi (1830-1919). Jacobi had twice been imprisoned for his liberal views, in Germany, but, when his second term of imprisonment expired, he fled to England, where he tried unsuccessfully to open a practice in Manchester. He then sailed to the United States and settled in Boston, but finding his labours unappreciated even in New England, he moved to New York and opened a practice in the Bowery in 1853. He became first president of the American Pediatric Society, but like all the original pediatricians, his interests were wide and varied, and so was his reputation; he was at one time or another President of the New York Obstetrical, the New York Pathological, and the New York County and State Medical Societies. Close on his heels came Thomas Morgan Rotch (1849-1914), L. Emmett Holt, Sr. (1885-1924), and Henry Dwight Chapin (1857-1942). The last was one of the first to encourage parents to visit their children in hospital, even though for only one day a week. He also placed so many unwanted children in foster homes that he was able, in 1917, when he crossed the American continent, to spend each night in a home where he had placed a child. Henry Koplik (1858-1927) was the fifth of this initial band of outstanding pediatricians. I still, and so do my residents, often unaccountably miss seeing his spots in children incubating measles. While these five figures were championing the cause of children in the United States, Dr. Alexander Blackader, after a spell as ship's doctor followed by a period of study at Great Ormond Street, was preparing the soil for the growth of pediatrics in Canada. At the same time, on the far side of the Atlantic, the foundations of pediatrics were being laid by Thomas Barlow (1845-1945), who was the first to recognize that children with acute rickets, as it was then called, actually had scurvy with or without rickets; by Frederick Still (1868-1941), whose name is now given to an acute form of juvenile rheumatoid arthritis, and by John Thomson (1856-1926).

With the development of concern for children and their diseases, it was natural that pediatric societies should be formed, and both in this sphere and in the realm of pediatric education the United

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States set the pace. The American Pediatric Society was founded in 1888. Jacobi was its first president; a Canadian, Dr. Blackader, became its president five years later, in 1893. Although we in Canada try to keep up with our colleagues south of the border, it was not until 1922 that, at a conference at the Hospital for Sick Children in Toronto, a Canadian Society for the Study of Diseases of Children was founded. This Society was later renamed the Canadian Pediatric Society. Dr. Blackader was its first president and Alan Brown (1873-1960) its first vice-president. The latter became famous for his aphorisms. These were not strictly in the Oslerian tradition, as the following examples demonstrate: "Never take out the tonsils before you have tied the umbilical cord" and "Breast milk is the best milk because it comes in such cute containers." They nevertheless became household words across the length and breadth of Canada.

The British Paediatric Association was the last to be founded, six years after the Canadian Society, in 1928, with Still as its first president. As a matter of interest, the impetus for the formation of this society came from the new world, in the person of Donald Paterson, a Canadian, who had come to Great Ormond Street from Vancouver. While in the United States he had attended meetings of the American Pediatric Society and had been impressed by the value of such a society, for it not only brought pediatricians together but it influenced directly or indirectly the standards of treatment and care for children. Although small pediatric societies had existed previously both in England and in Scotland, these had been more in the nature of small dining clubs where interesting cases had been shown or discussed. In its comparatively short lifetime the B.P.A., as the British Paediatric Association is affectionately called, has not only raised the status of pediatrics as a specialty, but has improved the standards of training in pediatrics as well as the care of children, and must surely have more than fulfilled the hopes of the Canadian who, in the role of an obstetrician, delivered it in a viable form. This society, like its American counterpart, has, in accordance with Donald Paterson's original suggestion, nearly always met for its deliberations and relaxation in rural surroundings.

The Americans were also first to put out a pediatric journal. The *Archives of Pediatrics* began its long career in 1884. The original *Pediatrics*, first published in 1896, survived infancy and childhood, but petered out at the age of 21 in 1917; this journal, in spite of its name, was not a blood relative of the more recent journal bearing the same name. The *American Journal of Diseases of Children* first appeared seven years later, in 1911. The *Journal of Pediatrics* followed in 1932, published as a private venture by the C. V. Mosby Company for the American Academy of Pediatrics. Some years later, when the time came for renegotiating the contract with the publishers, the editorial board tried to learn how much profit the *Journal of Pediatrics* was bringing in to the C. V. Mosby Company, for it could easily be calculated that a net annual income of at least $30,000 was being realized. Since the St. Louis publishing firm, which actually owned the journal, was unwilling to permit inspection of its accounts, the American Academy of Pediatrics decided to publish its own journal, *Pediatrics*, in 1947; the first issue appeared in 1948. This also is now making a handsome profit. The first British pediatric journal to be published was *The British Journal of Children's Diseases*, in 1904. The second British journal, the *Archives of Disease in Childhood*, was published in 1926 by the British Medical Association; this was two years before the formation of the B.P.A., but the growing influence of the latter gradually made itself felt, and in 1944 it began to nominate the editors, editorial committee and advisory board for the *Archives*, subject to the approval of the B.M.A. itself. In this same year the *Archives* incorporated the dying *British Journal of Children's Diseases*. I am not sure when we in Canada will bring out our own pediatric journal; at the moment we publish our reports in the American and British literature, but should our output become sufficiently voluminous we will probably go ahead and publish our own pediatric journal too.

These were the preliminaries which raised the status of pediatrics to that of a specialty in its own right. This naturally led to the development of pediatric training both at undergraduate and at postgraduate levels. Development was initially slow. Jacobi had been appointed as a clinical professor of diseases in children at Columbia in 1870, to be followed by Holt in 1901. The first full-time professor of pediatrics was Rotch, at Harvard, in 1903; other appointments followed, but even in the 1920's—as Grulee recently recounted—when the first full-time professor of pediatrics was being appointed at the University of Illinois, only 10% of the faculty knew what a pediatrician was. Today, however, I would suspect that there are very few medical faculties in the United States without a full-time professor of pediatrics.

In Canada and in the United Kingdom progress has been slower. The first occupant of a full-time Chair of Child Health, as most if not all professors of pediatrics have been called in the United Kingdom, was Sir James Spence, in the University of Durham, in 1942. He was followed by Capon at Liverpool in 1944, and Smellie at the University of Birmingham in 1946. Similar positions have now been developed at all the main university medical schools. In Canada progress in this direction has been slower. Although Blackader had been made a lecturer in pediatrics at McGill in 1883, no full-time professor of pediatrics in Canada was appointed until 1949 when Bruce Chown was appointed to the chair of pediatrics at the University of Manitoba. Charbonneau's appointment at the University of Montreal followed in 1950. In the

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following year McCreary was appointed to the chair of pediatrics at the University of British Columbia and Chute to the corresponding chair at the University of Toronto. These appointments had repercussions across Canada, and the number of pediatric professors quickly grew from coast to coast. By 1958 there were full-time professors in all but one of the 12 medical schools in Canada. The development of full-time chairs in both countries has raised the standards of training in pediatrics, and now, in Canada, all medical students not only receive training in pediatric problems but also have to pass an examination in this subject, for in 1959 an examination in pediatrics was incorporated into the L.M.C.C. examinations.

Postgraduate training in pediatrics in the United Kingdom and in Canada, except in a very few centres, still lags behind that in the United States. In the United States postgraduate training became to some extent standardized with development of Pediatric Boards by the American Pediatric Society and the Section of Pediatrics of the American Medical Association, and in 1934 the American Academy of Pediatrics decided that certification by the American Board of Pediatrics was required for admission. After 1937 this examination became mandatory. Canadian members, it was decided in 1947, could enter either by taking their American Boards, or by being certified in Pediatrics by the Royal College of Physicians and Surgeons of Canada. Certification in pediatrics, by examination, had been introduced in Canada by the Royal College of Physicians and Surgeons in 1946. In order to take the American examinations doctors are required to take two years' postgraduate training in pediatrics, though they must also have practised medicine for five years after graduation. In Canada three years' pediatric training is required for certification in pediatrics and four years' training is required before the Fellowship in the Royal College may be taken; neither examination may be taken until five years after graduation. In England also there is a higher examination in pediatrics, the Diploma of Child Health. This was introduced jointly by the Royal College of Physicians and Surgeons of England in 1935, and is probably the nearest equivalent to Pediatric Boards and Certification on this continent; it cannot be taken until two years have elapsed after qualification. As there are no practising pediatricians in the American sense, this diploma is of real value only to those who want to enter public health work, or who will be returning to their own home countries in the Commonwealth and elsewhere, where no corresponding diploma is or was available. As there are no "general practitioner pediatricians" in the United Kingdom, and as all pediatricians are consultants, the *sine qua non* of a consultant position being membership of the Royal College of Physicians, all pediatricians have had to take this latter examination before undertaking full training in pediatrics. This means that pediatricians must first be general physicians or internists. Those wanting to practise pediatrics have therefore had to qualify first as internists and have then had to return to a children's hospital and work their way up the ladder, stepping into the shoes of colleagues as they die or retire, or into new positions as they are created. The main pediatric teaching centres have not developed subspecialties in pediatrics to the same extent that these have been developed in the United States. This, I think, is because the backbone of the teaching staff is the general pediatric consultant—a pediatrician who can, with the assistance of his knowledgeable registrars, manage all problems from pyloric stenosis to asthma, and from hemolytic disease of the newborn to epilepsy; it is still not unknown for a few such pediatricians to make most of their bread and butter as general physicians. Such teachers often provide excellent undergraduate instruction, but their experience tends to be too broad to have the depth needed to provide good postgraduate training.

Until quite recently pediatricians in the United Kingdom were often drawn from physicians who had extended their spheres of interest into the general pediatric field. Pediatrics has not yet crystalized, or fossilized, whichever you will, into subspecialities to the extent it has in the United States. The development of sound postgraduate training is dependent, however, on special training in subsidiary departments of pediatrics, and it is for this reason that postgraduate training programs are not highly organized in the United Kingdom. One of Ned Park's great contributions to pediatrics was his mandate to Helen Taussig to specialize in pediatric cardiology and to Lawson Wilkins to specialize in endocrinological problems. Only when such specialization has been encouraged has great progress followed. Caffey, for example, pioneered pediatric radiology; Ethel Dunham, the care of prematures; Clement Smith, the care of the newborn; Victoria Crosse in England, the care of prematures; and John Keith, an example from Canada, has put pediatric cardiology in our country on a very sound basis. Any pediatric unit which hopes to undertake postgraduate training must have a nucleus of such specialties. A refreshing feature of the American scene is the frequency with which potential candidates for teaching posts are sent away for further special training, and then recalled to develop special departments at home. In this way the modern counterparts of old English guilds have been formed in special fields, for example in pediatric cardiology and in pediatric endocrinology, and the frequent exchange of ideas is encouraged. This pattern is being fostered also in Canada.

This pattern has, I think, been facilitated in the United States, because in that country there are a large number of well-qualified, all-round pediatricians who are already specialists in their own right, and when they need advice they do not need it from another so-called general pediatrician; they need it from someone who has made a special

study of the particular problem with which they are confronted, whether it be a cardiological, an allergic, epileptic, or other problem. And so it is that the presence of this large number of practising pediatricians has given rise to the growth of subspecialties in pediatrics in the larger centres, and these in their turn to more advanced postgraduate teaching and, of course, research.

The foregoing remarks have compared and contrasted in a rough way the development of pediatric services and training in the United Kingdom, the United States and Canada. The main purpose of this report, however, is to discuss both the undergraduate and postgraduate training of those who are to look after children. At the University of Saskatchewan there is an intake of between 30 and 40 medical students in each year; 40 begin, and though we would like 40 to complete their training, a few fall by the wayside, not on stony ground it is true but at any rate on inhospitable ground. During the first two years of their four-year medical course the hurdles of anatomy, physiology, biochemistry, bacteriology and pathology are surmounted. In the latter part of the second year, students are introduced to pediatrics. They are given a series of lectures covering mainly antenatal and perinatal problems—the effect of maternal rubella, for example, on the fetus, the detection and treatment of Rh iso-immunization, resuscitation of the newborn, the physiological and other changes that occur in this period, as well as the care and management of some neonatal emergencies. We try to provide our students with the latest information and to put this in its proper context. Retrolental fibroplasia is now almost of historical interest only, but the dangers of chloramphenicol therapy in the newborn are not. Hyaline membrane disease and/or resorptive atelectasis still bristle with problems, but they can be used to illustrate the steps by which knowledge advances, the eosinophilic herrings at one time being thought to be inhaled liquor and at another, evidence of left heart failure; side effects of asphyxia such as the fall in blood pH and the rise in the plasma potassium can be recounted, and the importance of counteracting these even when one does not understand the fundamental why or wherefore can be stressed. Here we would emphasize, and in our knowledge of bilirubin metabolism also, the fundamental contributions made by Canadian workers, even though one, Lathe, is now in the United Kingdom.

The last quarter of the second medical year is spent introducing students to children, to normal babies, to sick children, and to those with various handicaps such as deafness and cerebral palsy. During this quarter we also lecture to them on some of the common diseases.

During their third year, lectures, which are not numerous, are dovetailed with those which they receive from physicians and surgeons, so that we all discuss surgical emergencies of the newborn, cardiac, allergic, neurological and other problems together. During the course of this year all students spend time on the wards, during which they see patients, examine them and discuss their care and management.

During the fourth and final year each student is assigned, for one month, to a pediatrician, almost in the capacity of an apprentice, and he now learns something of how to handle both patients and their parents, as well as their diseases and disorders, so that when he too can practise on his own account he will not find himself floundering in strange waters. This course is not marred by any examinations, for though we cannot allow a student to qualify unless he has reached a certain overall standard, we realize that a medical education is a lifelong process, a discipline which the student inflicts on himself in an endless attempt to catch up with the ever-expanding universe of medicine. As yet we do not have the volume of patients or the staff to develop a comprehensive postgraduate program. It is possible that we never shall, but if we do we shall emphasize that the field of medicine, in its broadest sense, is not static, but like the ameba is always putting out new pseudopodia and retracting others. In my own short life, babies with hemolytic disease have been allowed to die untreated, have been given straight transfusions, and have been exchanged. I have seen the field of hematology open up to an extent undreamed of some 20 years ago; I have seen the world of steroid metabolism develop and the field of inborn errors of metabolism expand at an amazing rate, and most recently have seen the world of chromosomes mushroom up like the cloud from an atomic bomb. In this sort of world our medical schools should not aim at producing either fully qualified practitioners or mature pediatricians, like so many 1961 new model cars, but they should aim at producing practitioners with a sense of discrimination, who are prepared to scrap old knowledge as it becomes superseded—48 chromosomes for example—and to assimilate the new, who are prepared to read their journals with understanding: and the mail with its daily flood of invitations to use new remedies, with scepticism. I would also ask them to have an overriding desire to serve their patients, whatever the political climate, knowing that only by serving them to the best of their ability will they find real happiness.

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MEN AND BOOKS

A COMPARISON OF THE HISTORICAL ROOTS AND DEVELOPMENTS IN MEDICINE AND PSYCHIATRY AS THEY AFFECT RESEARCH*

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RESEARCH in most medical sciences has brought gratifying returns in the past 100 years. This has not been so true of psychiatry and in a previous article I have tried to indicate some of the current reasons.[1] The purpose of the present paper is to illustrate and compare the historical development of medicine and psychiatry and the contributions made by the medical sciences to each. There are great differences, and they account to a great extent for the relatively less advanced state of psychiatry and psychiatric research compared to medicine. The most significant reason for the retardation seems to be the closer linkage between the basic sciences and progress in clinical medicine and the greater dependence of psychiatry on the still nascent social sciences.

The rapidly changing culture of today exerts great influence on the conduct of psychiatric research in particular and on the broader field of scientific research in general. Scientific research was once the vocation and avocation of a privileged few working in the sanctuary of universities. There was scant need for instrumentation, and fruitful work was undertaken with string, sealing wax, and the smoked drum. Now it is no longer confined to the few or to the peace of the ivory tower. It has changed in the last fifty years to embrace a large number of highly trained people employed by government and industry as well as by universities and hospitals, using expensive and involved equipment. The change has improved the status and sometimes the rewards, but not the atmosphere conducive to meditation. As Parkes[2] says:

"The scientist, who used to be able to pursue his work in the peaceful academic atmosphere which was the foundation of his discoveries, now lives in a whirl of meetings, memoranda, and administration which makes it difficult for him to give consecutive thought to anything."

Others have commented seriously[3] and facetiously[4] in the same vein.

We have passed then from the time of maximal derivation of ideas from contemplative research to the era of application, certainly in technological branches. Why has psychiatry not made more use of the kind of advances medicine utilized so well, and from where is it to derive fresh integrating concepts and techniques in this hectic age?

In the succeeding pages an attempt is made to determine reasons for the slower progress of psychiatry and its investigation compared to clinical medicine.

THE PROCESS OF MATURATION IN MEDICINE AND PSYCHIATRY

Examination of the historical roots and development of a subject confers a perspective and understanding of the process and degree of maturation. The status of psychiatric research should become clearer if reviewed against the developments in medicine and psychiatry. Since the latter is allegedly the offspring of the former, it is appropriate to examine medicine first.

HISTORICAL DEVELOPMENTS IN MEDICINE*

Medicine as we know it today is the product of skilled clinical observation integrated with and amplified by knowledge and techniques derived from the basic medical sciences. Modern medicine may be said to be the natural outcome of the Renaissance and to begin with the year 1543 which saw the publication of Vesalius' illustrated "The Fabric of the Human Body", and Copernicus' "On the Revolution of the Celestial Spheres". Fig. 1 and its legend are presented in an attempt to illustrate relationships between the development of some outstanding names and events in the progress of medical sciences and clinical medicine from the 16th century to the present.

Considerations of space prohibit an account of the importance and achievements of all the names listed in this diagram, but the contribution of the greatest clinician of the 16th century, the French physician Jean Fernel, in establishing "Physiology" and "Pathology" as subjects warrants mention. These were titles of two of the three volumes in his "Universal Medicine"; the third was "Therapeutics". It was his endeavour to correlate disease and bodily structure.[9]

In the 17th century attempts were made to apply physics and chemisty in the explanation of disease. These failed as they were premature. The basic science data of the times were not applicable to clinical medicine. In the clinical field, however, achievements were enormous. Thomas Sydenham, the "English Hippocrates", made a fresh start in the systematic description of the natural history of disease, and therefore in nosography. His fame justly rests on his studies of dysentery, measles, scarlet fever, chorea minor, gout and hysteria. He

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*Concise accounts available in monographs by Singer(5, 6) and Ackerknecht.(7)

DEVELOPMENTS AND INTERRELATIONSHIPS BETWEEN MEDICAL SCIENCES AND CLINICAL MEDICINE

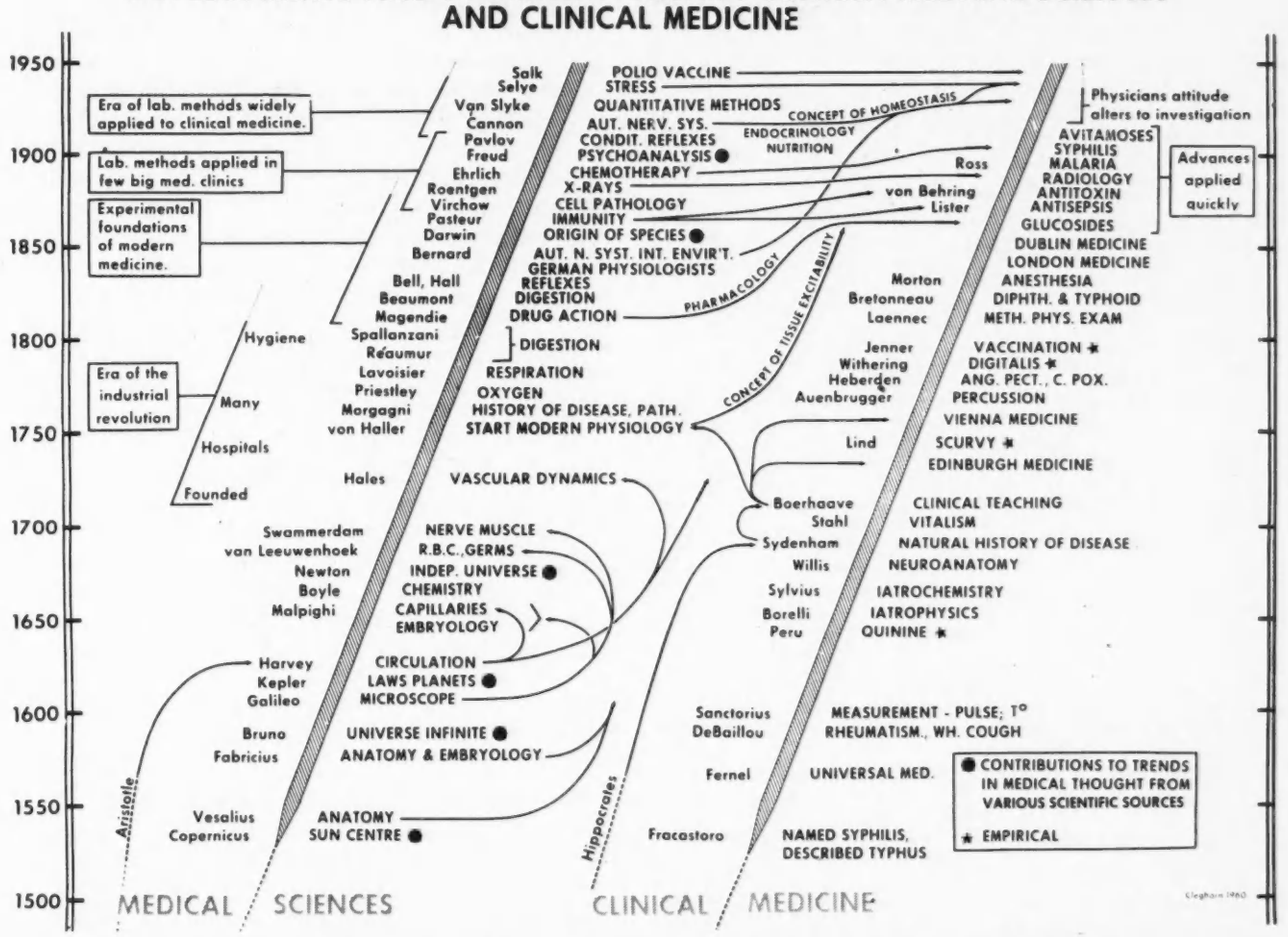

Fig. 1.—This schematic portrayal of developments in the basic sciences and clinical medicine is intended to illustrate the chronology of the emergence of topics of critical relevance and their great sponsors. The solid lines indicate directions of influence and show that only in the latter half of the 19th century did the medical sciences begin to affect clinical medicine with rapidity and regularity. The conviction conveyed by the experimental method and the climate of opinion developed in that period was necessary to enforce rapid application and acceptance by clinicians of the systematic and empirical discoveries in the fields of the medical sciences. The asterisks indicate empirical discoveries. They had little effect on medical theory prior to the 1800's, and their practical application was only slowly extended. Almost 200 years elapsed between Lind's demonstration of the prevention of scurvy by citrus fruits and Szent-Györgyi's isolation of vitamin C. The solid circles indicate contributors to important scientific trends, not necessarily directly related to medical sciences but of influence on scientific outlook. The first four of these concern the heavens, towards which man's imagination was early turned and for long preoccupied. This preoccupation culminated in Newton's major mental revolution, a universe envisioned as independent of the spiritual order. The second cataclysmic change in outlook was evoked by Darwin's evolutionary theory. The third was the product of revolutionary ideas conceived by a medical man, and consisted of the threat to man's contented self-concept posed by psychoanalysis. These three insults to human narcissism have been termed by Freud[8] the cosmological, the biological and the psychological blows.

It should be noted that Galileo's microscope affected many studies in medical sciences, but his influence on clinical medicine was long delayed. Sanctorius' attempts at metabolic measurements had no impact on current practice. Harvey's discovery of circulation was fundamental to physiology, but did not affect clinical medicine at the time. On the other hand, Sydenham influenced the great Dutch physician Boerhaave, some of whose pupils carried his influence to Edinburgh and the English-speaking world, and one, von Haller, went on to initiate modern physiology, marking the influence of clinical studies on a basic science. Only in the 19th century, with the emergence of the new methods of experimentation, does one encounter a rapid cross-over of findings in the medical sciences to application in clinical medicine, as indicated by the transverse lines.

adopted the great specific, quinine, imported from Peru in the 1630's, which, by its curative effects on malaria, helped separate this most prevalent fever from others. His brilliant contemporary, the neuroanatomist Thomas Willis, also gave excellent descriptions of fever, myasthenia gravis, and hysteria.

The 18th century saw further notable developments of clinical teaching beginning with the emergence at Leyden of Herman Boerhaave (1668-1738), the greatest physician of his time. He taught in the clinic, laboratory, and morgue, correlating lesions to symptoms, introducing the method of instruction still used. His learning, enthusiasm, generosity and inspired teaching raised Leyden even above Padua, where Montanus had initiated instruction at the bedside in that epochal year 1543. Through his pupils, Boerhaave is the founder of the Edinburgh School, which set the standard for English-speaking countries for decades to follow. One of these pupils, the erudite Swiss, von Haller (1708-1777), far outstripped his master in scientific authorship, especially as a physiologist. His great work, "Elements of the Physiology of the Human Body" (1759-66), modernized the subject. He was the first to express a theory of the nervous system that can be called modern. Other Leyden pupils brought the Vienna school to the first rank. Medical achievements so launched rose to unprecedented heights in the latter half of the 18th century. It is no accident that the empirical discoveries of Lind, Withering, and Jenner came in this 50-year period, or that fresh concepts and methods arose. These came with the description of percussion by Auenbrugger in 1761, and with Morgagni's great

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work on pathological anatomy which appeared the same year. Clinical acumen was sharpened later by the technique of auscultation introduced by Laennec in 1819.

The 19th century opened with scientific medicine still waiting upon a scientific physiology. The wait was long, until some 200 years after Harvey's demonstration of the circulation of the blood. It was terminated by French and English physiologists, and the great period of 75 years of physiological synthesis began. The vigorous German school soon took the lead. Its outstanding proponents were Liebig, who demonstrated the chemistry of living processes; Müller, with his comparative and psychological points of view, including work on colour vision, hearing and fever, and his pupil Helmholtz, who measured the velocity of a nerve impulse and developed the ophthalmoscope; and Ludwig, whose development of graphic methods and work on secretion contributed greatly to mechanistic ideas and ultimately to clinical practice. Contemporaneously, the great French physiologist, Claude Bernard, established the basis of experimental medicine. He demonstrated the power of the liver to build glycogen, coined the concept of internal secretion, demonstrated vasomotor nerves and enunciated the principle of the constancy of the internal environment. France's other enormously original mind of this period, Pasteur, illuminated the topics of fermentation, bacteriology, and immunology. Out of his and Koch's classical studies grew Lister's surgical revolution in the development of antisepsis. In this era also, Morton introduced anesthesia, while a little later the German histopathologists' concepts of cellular pathology appeared. The chemistry of the alkaloids and the glucosides found ready application in clinical medicine, as did von Behring's antitoxins for tetanus and diphtheria. The implications of x-rays for diagnosis were quickly grasped, as was the significance of the place of the mosquito in the control of malaria. Endocrinology developed apace, the result of many men's efforts.[10] These were no longer the advances of happy and haphazard empiricism that waited on the indulgence, credulity or sympathy of physicians for utilization. These were products of scientific demonstration based on experimental method that welcomed questions and embraced objective validation. A new social value and climate of opinion had been established, and in this milieu advances developed out of systematic scientific work and were applied with the same logic.

At the turn of the 20th century the English school of physiologists were an inspired group influencing medicine by their teaching and research, while in America, Cannon began to emerge as a leading figure. Despite this flourishing of the sciences basic to medicine, there seems to have been little awareness on the part of clinicians of the full potentialities for a new medicine. There was satisfaction and complacency but little change in practice except for the few specific remedies. Following a time lag of approximately a quarter of a century, the incorporation by medicine of the knowledge and skills developed in the laboratory began to be evident, coinciding with what C. P. Snow calls "the application of real science to industry".[11] Medical men became better informed as physiology and chemistry invaded the clinical field and enriched it, not by taking over but by being taken over. The scientific attitudes developed in the clinic, and a new type of physician emerged.[12] Whereas most physicians of the first quarter of this century were unquestioning followers of tradition, devoted to diagnostic cataloguing, more of those of today are interested in appraising both laboratory and clinical findings. This has been brought about in part by granting the clinical scholar financial support and thus liberating him from the anxieties and absorption of private practice, and in part by the inculcation via the laboratory of the use of quantitative methods and a fresh realization of the need to evaluate evidence. With this has come an awareness of the importance of understanding the patient as a person.

HISTORICAL DEVELOPMENTS IN PSYCHIATRY*

1. *Precursors*

Psychiatry as we know it today is the product of a wider variety of observations and less precise techniques than medicine. It does not owe so much to the basic sciences, and is just as much an outgrowth of extra-medical humanistic disciplines as it is of medicine. It has no date corresponding to that of Vesalius.

Such shrewd observations on abnormal behaviour as the Greeks made disappeared in the Dark Ages. Psychological light only dawned again with the Renaissance when there emerged in the early 16th century the liberal thought of the non-medical humanists, Erasmus, Sir Thomas More, and Juan Louis Vives. Their writings and philosophizings touched on and illuminated the as yet undefined field of medical psychology and related areas, such as education and social organization. At the same time, a vigorous band of medical men began to talk sense about mental illness. This was in contrast to what had been going on for some hundreds of years, for possession by the devil or evil spirits had been the prevalent rationale for inexplicable behaviour. This evil reached its climax with the infamous persecution of deviants and the deranged being sanctioned by the Church in that handbook for witch-hunters, the "Malleus Maleficarum" (1484). Of the small elite band of medical men who opposed this collection of barbarous nonsense, the most famous were that violent antagonist of ancient dogma, Paracelsus (1491-1541), and the gentle, perspicacious and pious physician, Johann Weyer (1515-1588). The most explicit of this group

*Historical accounts of Zilboorg(13) and Ackerknecht(14) provided chief source material.

was Weyer, who refuted witchcraft, described hallucinations due to drug poisoning, considered psychopathology objectively, and endeavoured to divorce medical psychology from theology. His writings were banned by the Church and so fell into oblivion for 250 years. The contributions of his contemporaries fared no better. Despite the substantial observations of these intuitive scholars, their work hardly warrants the honorific of "The First Psychiatric Revolution" conferred by Zilboorg,[13] for there was no solid base of knowledge established or continuity of effort launched. They were at best prophets.

In succeeding decades, while clinical medicine continued a steady growth, medical psychology showed only sporadic though brilliant flashes, like that of the Swiss, Felix Plater (1536-1614), whose clinical observations on the insane surpassed all his predecessors. Great 17th century physicians took note of the psychologically deviant. Sydenham opined that a sixth of patients in his practice were hysterical. His contemporary, Thomas Willis (1621-1675), made outstanding observations on excited and depressed states and other mental illnesses, but his brutal methods of treatment reflected little psychological understanding. His studies of the central nervous system laid the groundwork for neurology.

The intellectually satisfying reductionism inspired by the physico-mathematical achievements of the 16th and 17th centuries, while fruitful for the basic sciences and clinical medicine, did not favour the growth of understanding of man. Psychology remained the prerogative of the speculative thinkers, like Descartes and Francis Bacon, and contributed nothing immediate to the understanding of the mentally ill. Progress occurred to the extent that execution of these unfortunates was gradually abandoned, but they were still regarded as incurable, and hence outside the realm of medicine.

2. *Beginnings*

The 18th century proved to be critical for the development of psychiatry. A decisive turning point may be attributed to the efforts of the vitalist, George Ernst Stahl (1660-1734), the German clinician and chemist. He saw and objected, in the early 1700's, to the cleavage between the organic and psychological in the medicine of that time. He divided mental illness into that due to disease of organs, and that having no organic basis, or functional. While his influence was not immediate, he supplied a valuable stimulus to a number of men in the latter half of the century and the next. Fig. 2 epitomizes some of the main developments.

Only towards the end of the 18th century did psychiatry begin to show coherence and continuity of growth. It coincides with, though it does not depend on, what Conant calls the start of modern science's growth into manhood.[15] This was the real beginning, some 250 years after the start of modern medicine with Vesalius and 100 years after Sydenham flourished. The impetus to this development came, initially, from quite non-medical sources. It was due to the efforts of the philosophers of Enlightenment,[7, 13, 16] whose emphasis on reason and whose optimism for human achievement supplied the rational release from dogma and provided the toleration necessary to the establishment of a reasonable approach to the insane.[7, 16] Who were the proponents of this movement? Chief among them were the physician Locke (1632-1704); the polemical genius Voltaire (1694-1778); the bishop Berkeley (1685-1753); the Scottish iconoclast Hume (1711-1776), and his professorial compatriot Reid (1710-1796); the atheistical Abbé Condillac (1715-1780); and the behaviourist physician La Mettrie (1709-1750).[17] Their boundless faith and philanthropic interest led to the overthrow of the pessimistic belief in the incurability of the insane, and to the establishment of hospitals and of institutions for the mentally ill. Sanitary reform of prisons became a public concern, as did community health through efforts such as those of Frank. Other results of their endeavours were the stormy revolutions of this century and the appearance of the social sciences, and, as a consequence, sociological theories of the causation of mental disease.

Other stimuli to the development of a *bona fide* medical psychology arose in this century from medical sources. The first was represented by the work of the pathological anatomists, e.g. Morgagni, and rested on the provision of a more solid base for medical disease, which supplanted the humoral somaticism of Hippocrates and Galen. It was valid. This influence was seemingly fortified by the experimental discoveries of von Haller on the sensibility of the nervous system and irritability of muscles. Its transposition by Cullen of Edinburgh into a general explanation of the states of collapse due to nervous disorders was hardly warranted by the evidence. However, for one sound and one shaky reason the nervous system was at last held responsible for those illnesses which Cullen named "neurosis", and which had formerly been thought of as "vapours" or "decay of the humours". Cullen's associate, John Brown, became the most influential advocate of the theory of irritability and exhaustion of the nervous system, a forerunner of Baird's "neurasthenia" and Pierre Janet's "psychasthenia".

The last three decades of this century saw the production in Britain of an abundance of sound work. Textbooks on insanity, of merit for the times, were authorized by Battie and Arnold. Model case histories were published by Perfect. Crichton discussed the passions and Haslam described general paresis. William Tuke established his famous humane hospital at York. The efforts of such men as these helped put psychiatry into the stream of clinical endeavour that medicine had entered more than a century earlier. These decades also found reinforcement for interpretation of mental illness in terms of disease of the brain in the begin-

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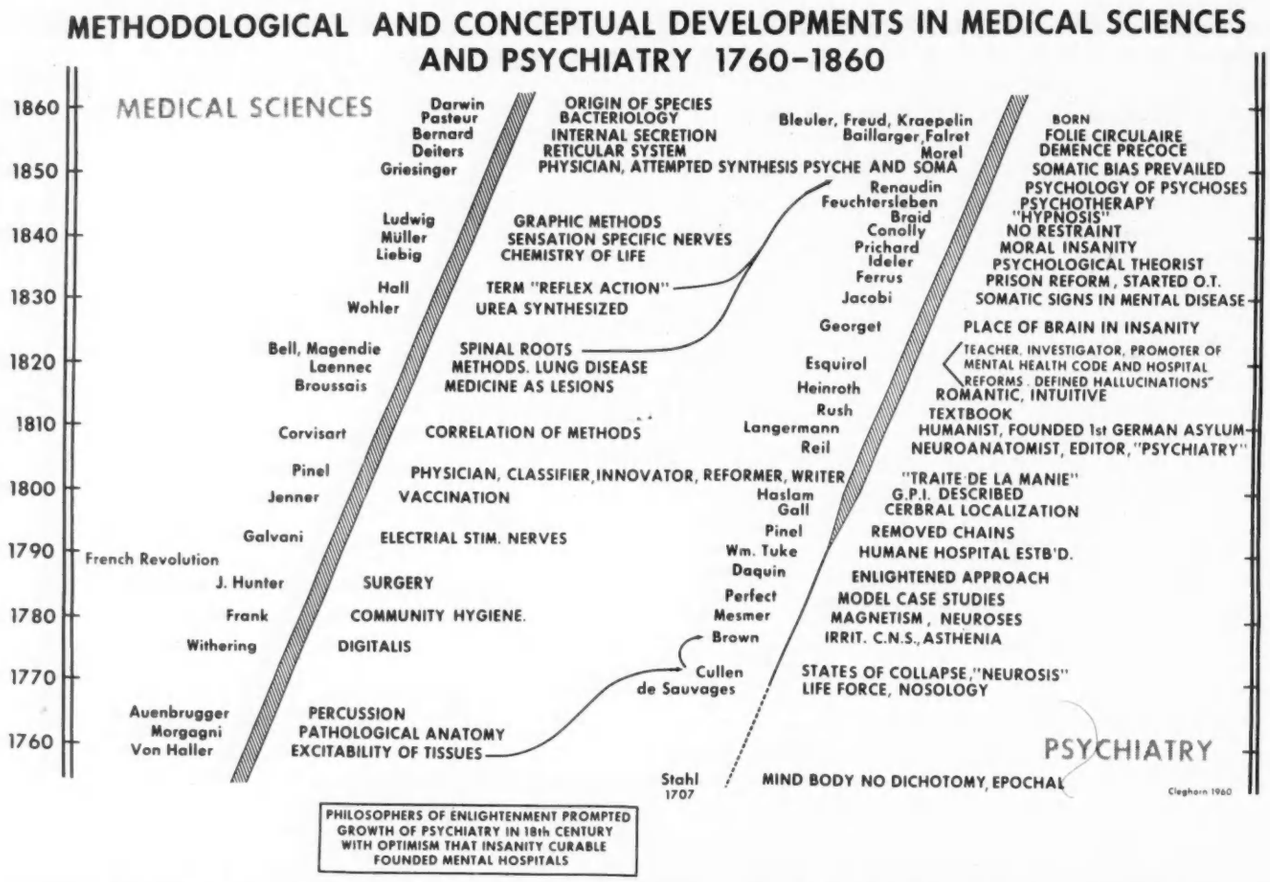

Fig. 2.—This chart shows the temporal relationship between basic developments in medicine, its allied sciences, and psychiatry. Clinical techniques of critical importance are included as they are considered part of medical science methodology. The brilliant and significant accomplishments in clinical medicine and its related sciences in the 100 years reviewed here had practically no direct effect on psychiatric practice. However, the rational approach engendered by the philosophers of Enlightenment, the insightful division of mental illness into organic and functional by Stahl, the dispersal of humouralistic doctrines by the "solidistic" theories of disease promulgated by the pathological anatomists, and the accentuation by von Haller on nervous excitability, provided the stage setting from which alienists could start. While few of the other activities in the medical sciences contributed anything so directly, they did create an atmosphere of rewards accruing to those following rational methods in their own sphere. Further encouragement for considering the nervous system important was derived from work such as that of Gall, Reil, Bell and Magendie, and Hall. The first two of these five are included under the psychiatric division since their other activities were in that field. Actually, Griesinger drew upon the concepts of "reflex action" enunciated by Hall. It is significant that two of the major figures in psychiatry in the century 1760-1860—namely, Pinel and Griesinger—were outstanding physicians as well as contributors to the less exact field of psychiatry. They are so placed on the diagram that this is apparent. As indicated in the text, no date can be assigned as a beginning of psychiatry. Pinel's act in removing the chains from his insane charges in 1793 was more in the nature of a declaration of a new era which was already in its incipiency. Certainly, progress seems to have been more consecutive thereafter. Therapeutic advances, such as they were, were more in the nature of attitudes and environmental alteration. This was a period of developing ideas, and no other rational remedies or empirical forms of treatment were found. Two vital words were coined: "neurosis", by Cullen, and, in 1803, "psychiatry" by Reil. It is significant that most of the ideas which were to burgeon in the next century into better formulated concepts were already being talked about in this century.

ning of studies on cerebral localization by Gall (1758-1828) who, despite his fanciful "phrenology", made valuable contributions to the study of the brain. The latter part of this century also witnessed substantial attempts at classification. Boissier de Sauvages (1706-1767) was the leading nosographer of the period, modelling his endeavours after those of Sydenham a century earlier.[9, 13]

3. *Early Development*

The burgeoning of modern psychiatry coincided with the cataclysm of the new order represented by the French Revolution. The same social forces nurtured both. It is of interest to observe that for the development of concern with man's intimate life, the emotional turmoil of a social revolution was the setting, while for the start of modern medicine the era of the revival of learning provided the appropriate climate.

The most representative doctors in the new order were, appropriately, French. Joseph Daquin (1733-1815) heralded a fresh viewpoint, approaching mental disease with curiosity and no preconception, much as Weyer had done 200 years earlier. He handed on his penchant for enlightened action to his pupil, Pinel, the greatest of these pioneers, whose historic act of removing chains from the inmates at the Bicêtre in 1793 proclaimed a new era. It was Pinel's eminence as a physician for which his contemporaries admired him. For us, the reformer and the author of "Traité de la Manie" are more interesting. In this book, he pointed to the significance of psychological and emotional factors in the development of mental illness, and the importance of heredity and environmental factors. Symptomatology, classification, and administration all received his critical attention. His psychiatric attitude marked the beginning of a new epoch.[18]

For many years French physicians remained the most typical and energetic of the new psychiatric order. Pinel's famous pupil, Esquirol, showed the

same basic attitude and equally vigorous diverse talent. His skill as a teacher fixed the pre-eminence of French psychiatry, and, through his pupils, this lasted half a century after his death. Other famous French psychiatrists in the period include Ferrus, who initiated many reforms and started occupational therapy. Georget dealt in a brief life with legal aspects of mental disease and cerebral localization. Falret and Baillarger developed the concept of circular insanity; Moreau and Morel described cases of "démence précoce"; Morel and Magnan, a theory of degeneration.

Meanwhile, in England, Prichard created the concept of moral insanity and Conolly propagated the policy of no restraint. D. H. Tuke, the great-grandson of the founder of the York Retreat, represented the best in scholarship and humanitarianism, like his great counterpart, Isaac Ray, in America. The great Henry Maudsley established the present-day academic psychiatric attitude late in the century with an insistence on detailed study of every patient. English medical talents were concentrated in this century on physiology and neurology, where facts are found and theories wilt. Possibly the Darwinian revolution was enough for one country for one century.

German psychiatry was launched into the 19th century by the efforts of Reil, the great neuroanatomist, medical editor, and student of neuroses, and by Langermann, admirer of Stahl, humane teacher and medical psychologist and founder of the first asylum in Germany. The romantic movement in Germany nurtured the division between its representatives, the psychicists and the more objective somaticists. Religious adherents of the former school, such as Heinroth, regarded mental disease as a result of sin. Though emphatic and often unclear, he tried to express ideas of conflict and was fundamentally concerned with psychological processes, for which there was no adequate vocabulary. The ethical psychicist Ideler endeavoured to describe the toll exacted by the passions in excess, but his excellent psychological observations remained unformulated for lack of an established psychology. The somaticists had a firmer approach. Jacobi described somatic manifestations of mental disease and disclaimed the need for psychology, but as Ackerknecht[14] points out, the romantic idealistic traits appeared in even the somaticists in their conviction that the immortal soul could not become diseased. Fundamentally, the extremists of both groups were equally speculative.

4. *Transition*

The growth of concern for the psychologically troubled led to a realization of the need for mental hospitals, so that many modern psychiatric institutions were opened in the first half of the 19th century. This took place a century after the boom in hospital building for the somatically ill, prompted by the urbanization arising from the Industrial Revolution (see Fig. 1). The directors of the new institutions, faced by the reality of daily contact with patients, became in Germany the leaders of psychiatry between 1830 and 1860. They formed the transitional generation between the romanticists and somaticists.

The victory for the latter emerged after the death of the great physician and sometime psychiatrist, Wilhelm Griesinger (1817-1869). At 26 he was Professor of Medicine at Tubingen; at 28 the first edition of his book on psychiatry appeared and at 40 his famous volume on infectious diseases, the result of two years spent at Cairo. Only in 1865 did he assume the Chair in Neurology and Psychiatry in Berlin, and the change from institutional to university psychiatry began with him then. He proclaimed that mental diseases were specifically diseases of the brain, despite the absence of specific brain damage in many cases. In his textbook,[19] which went through many editions, he demonstrated great intuitive insight into the psychological reactions of his patients, but declared he knew no psychology, which was still considered as belonging to philosophy and theology. He was, however, psychologically discerning and discussed the two-way relationship between affective and somatic changes. His fame in large measure rests on his merging of, and becoming the father of, neuropsychiatry, but his contributions far transcended this. Ackerknecht[14] says, "All current trends in psychiatry can be traced to parts of his work." He developed such concepts as ego structure, the unconscious, frustration, and wish fulfilment, in symptoms and dreams. In a sense, then, he also put romantic psychology on its feet! The effect of his book was to strengthen the concept of mental disease as confined to the brain, and it is unfortunate that his great psychological contributions were either overlooked or misunderstood.

The advances in brain pathology in the latter half of the century, called the period of "brain psychiatry"[14] (see Fig. 3), led to real advances in pure science, at the hands of men like Broca, Wernicke, Gudden, Korsakov, Meynert, Nissl and Alzheimer. A contribution of greater significance was the emergence of the clinical school which introduced into psychiatry the Hippocratism practised by Sydenham. This called for a description of the natural history of events, observation of every stage of the disease till recovery or death. Pinel had already made such attempts, endeavouring to get away from symptoms, in his studies on the course of mania, but this technique only came to fruition late in the 19th century. It permitted Neumann to recognize the occurrence of "recovery with defect"; Westphal to describe obsessional states; Wernicke to elaborate on aphasia; Kahlbaum to spell out catatonia; Hecker, hebephrenia; and Krafft-Ebing to establish the relationship of syphilis to general paresis. Nowhere was so much investigation, teaching, and hospital organization going on as in Germany in this century.

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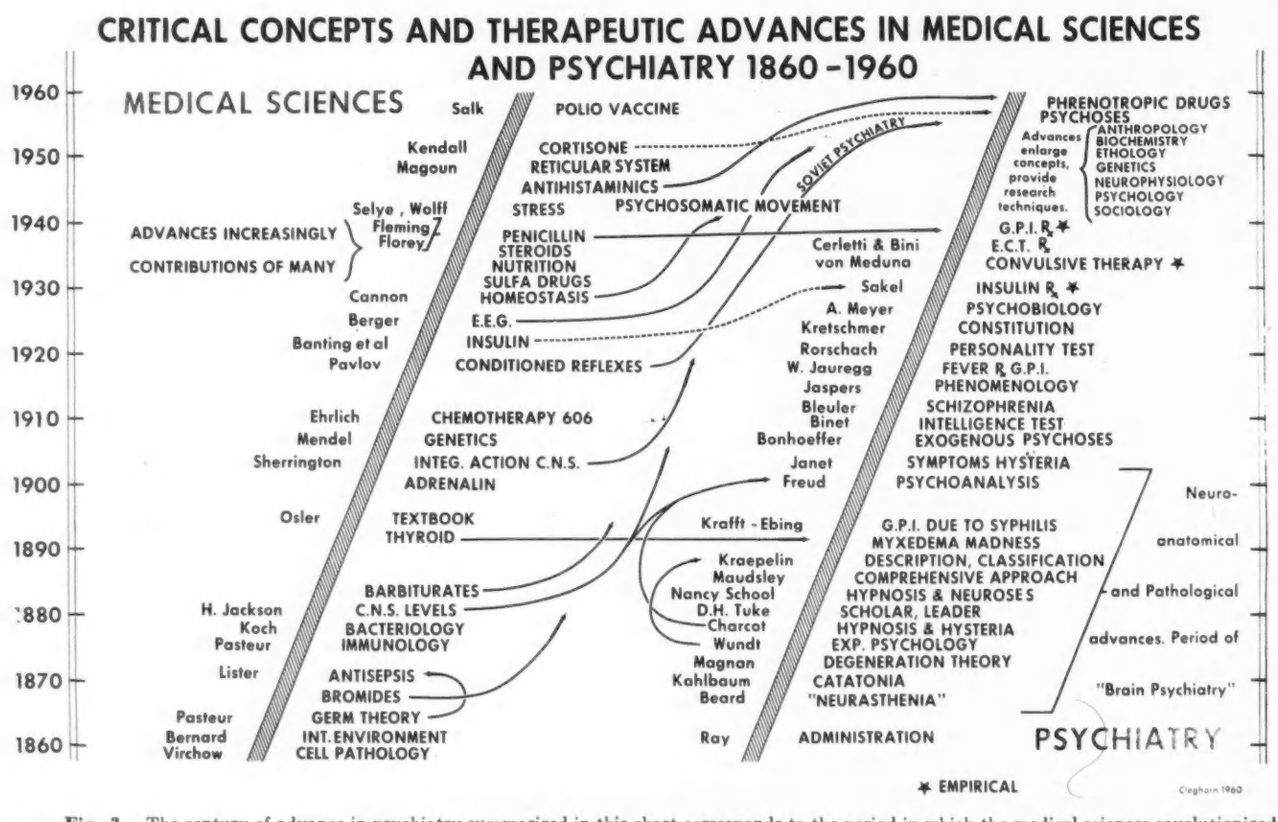

Fig. 3.—The century of advance in psychiatry summarized in this chart corresponds to the period in which the medical sciences revolutionized clinical medicine (see Fig. 1). No such phenomenon took place in psychiatry. Therapeutic advances were negligible until the "30's", when several empirical procedures were introduced. These obtained no initial rationale from the medical sciences. It is of interest that they mirror the empirical medical successes of the late 18th century. They were, however, applied with greater vigour and their therapeutic influence was vast. Only three outstanding instances of therapeutic advances arising from research in medical sciences occurred, viz. thyroid, penicillin for G.P.I. and the psychotropic drugs shown by the solid transverse lines. Interesting clinical changes arising from laboratory studies are shown by the broken transverse lines. Contributions of the medical sciences to psychiatric thought were confined to Jackson's three-level theory of the C.N.S., Sherrington's studies of the integrative action of the C.N.S., and Pavlov's conditioned reflex experiments. Their influence was not profound. Whereas concepts in medicine regarding organism and host, physiological process and nutrition were well advanced in the 19th century, theory and classification have played the greater role well into the present century in psychiatry in an endeavour to establish basic concepts. In this respect psychoanalysis has been abundantly stimulating. Practical advances in psychiatric techniques of observing or altering mental phenomena have arisen in the most unanticipated ways. The shock therapies could not have been predicted. It would have been impossible to have forecast Rorschach's personality test, or the serendipitous discovery of the influence of LSD, which revived previously suspended studies on the psychotomimetic effects of mescalin. The influence of cortisone and ACTH in producing psychoses aroused great interest, but has contributed little to psychiatric understanding. The results of studies of sensory deprivation initiated by Hebb[19] provide another approach to abnormal psychological experience. These are areas from which firm concepts may yet emerge, but they are of a very different order from those so readily transposed from the basic sciences to clinical medicine. A major difficulty in investigation in psychiatry has been the nature of the phenomena studied. This is, on the whole, peculiar to man and therefore lends itself less readily to methods evolved by studying lower forms or separate tissues. The recent development of psychopharmacological agents and current physiological and biochemical studies are rectifying this situation to some extent. New methods for evaluating psychological changes are being evolved as the anecdotal technique has almost run its course.[20]

5. *Emergence of Modern Concepts*

The classifications which had appeared early in this century were more confusing than clarifying. This was remedied by the efforts of Kraepelin, who showed his interest in psychiatry while still a medical student. Following graduation, he spent some time with the famous physiological psychologist, Wundt. He thought of himself as a proponent of the natural sciences and fitted in with the spirit of those years, which drew strength from the Darwinian scientific atmosphere and German technological accomplishment and socialized strivings. But Kraepelin seems to have been closer to the Linnaean philosophers of the 18th than the comprehensive biologists of the 19th century, such as Bernard, who stated that between health and disease there was no essential difference. In his book, which first appeared in 1883 as an outline, *in extenso* four years later, and in its classical form only by 1899, he spelled out clearly the concepts of manic depressive psychosis and dementia praecox, and the importance of prognosis. In his scientific detachment he achieved a unique perspective of mental illness as a whole, but failed to fathom the inner life of the person. The work of Kraepelin marks a peak but does not establish a new era in psychiatry. His accomplishment was to bring mental disease into medicine, but despite his establishment of laboratories in an endeavour to pattern psychiatry along the lines of internal medicine, the conceptualization was inadequate then and for decades to come, like iatrochemists of the 17th century.[22, 23] Its major handicap was the fatalistic groove into which prognosis was cast and the exclusion of considerations of human personality. It is a pity that he dismissed many of the achievements of his predecessors. His contribution was to clear chaos by defining clinical groups, a very necessary preliminary to research of a more definitive kind.

The Swiss psychiatrist, Bleuler, born the same year as Kraepelin, lends himself less readily to the recognition of his achievements. They were not so systematic, or so shattering, as Kraepelin's schematizations, but in the long run may well prove to be more important. He achieved his greatness by the

exercise of diligence and intellectual powers of magnificent proportions. His writings are not easily subject to concise formulation, amenable to lay comprehension, or to caricature, like Freud's, and his contribution on the schizophrenias was not translated into English for 30 years. He was far more of the personal physician than either Kraepelin or Freud. From the beginning, he was fascinated with the problem of man, and was aware that illness in medicine had no proper definition, and still less in psychiatry.[24] He did not deny the importance of neuroanatomical research, but was convinced that mental disease did not stop psychological processes which have to do with cares, needs and hopes, though in the mentally ill these act in a somewhat pathological manner. A long-time friend of Freud, Bleuler was among the first to take up Freud's early trend, but he was also close to Kraepelin. Somehow or other Bleuler stood between the two, yet remained original. His chief claim to fame was his classic analysis of the dynamic pathology of the schizophrenias, a piece of clinical research of great importance to subsequent workers.

Systematic study of the neuroses evolved late and constitutes an even more nebulous realm than the psychoses with which the psychiatric pioneers were more particularly concerned. Anatomy and physiology, which had proved to be so helpful in medicine, had been of little assistance in understanding the psychoses and were to be of less use in explaining the neuroses. Another technique was necessary to start the development, and the study of hypnosis proved to be the launching pad. Mesmer, a Viennese physician practising a theatrical therapy based on what he called "animal magnetism", arrived in Paris in 1778, the same year as Pinel. He created a following and gained for himself the accusation of charlatan, yet he and his followers had undoubted therapeutic successes. Mary Baker Eddy, for example, was relieved of a hysterical paralysis by his method.[13] The name "hypnosis" was coined only in 1843 by the reputable surgeon Braid, whose advocacy promoted its use. Systematic application of hypnosis by Liébeault and Bernheim ("Nancy School"),[14] and the great Charcot, led to sensible study and a more modern approach to psychotherapy. Both Janet and Freud found inspiration in these efforts.

Janet utilized hypnosis in his studies of hysteria and other neuroses. His brilliant results transcended the use of a single technique with the enunciation of new ideas. He described automatisms in neurotics, recognized the place of the unconscious therein, but still adhered to the outmoded ideas of "degeneration". His rank is difficult to assess. By some partisans he is extolled as superlative.[25] In the estimation of the historian Ackerknecht[14] he was immensely fruitful and versatile but deprived by his eclecticism of the drive and effectiveness of the system maker.

Freud, the most controversial figure of modern psychiatry and perhaps of all 20th century science, has had an impact not only upon psychiatry but on related disciplines and culture as well.[26] The roots of analysis are many and of great interest, but it is sufficient for our present purposes to note that the era in which Freud grew was one of revolutionary concepts and new techniques in science, with biology, physiology, and medicine setting the pace. Although Freud developed a new psychology, he was of his time, with its heroic innovations and mechanistic limitations. His work was not psychology "de novo" because, as Jones[27] has pointed out in his biography, and as Riese[28] has more recently described in a scholarly study, his previous scientific researches are essential to understanding his later development. His classic study of aphasia, as Stengel[29] has shown, displays the influence of Hughlings Jackson and deals with proposals of that great neurologist which foreshadow some of Freud's subsequent ideas. His concept of the unconscious was adumbrated by many.[30-32] He frequently referred to physiological ideas, reflecting his five years in Brücke's laboratory, but he had to gain support for many of his formulations in the non-quantitative antecedents of a humanistically oriented heritage.

It would be eminently satisfying if one could epitomize the influence exerted by Freud's system for exploring the mind. While this is not possible, a most explicit condensation of his kaleidoscopic contributions is contained in 25 short pages by Appel.[33] A less categorical but more empathic statement of the core of his contribution has been presented by Zilboorg,[34] who maintained that the practice of medicine is motivated by compassion for the sufferer, or, in other words, identification with the sufferer. This had been impossible in the case of the psychotic or neurotic while they inspired fear, hatred or disgust. Freud's unique achievement, he maintained, was to promulgate the thesis that the laws governing psychological unconscious processes are essentially the same for mentally ill and mentally healthy. This is reminiscent of Bernard's attitude to health and disease from a physiologist's standpoint. At last a language for describing and a scheme for understanding normal and abnormal mental processes was provided. It was a new tool for investigating psychological processes and made it possible for many to report phenomena identifiable by others. It was no longer restricted to those few highly intuitive souls isolated in every generation. Until recently the contributions of psychoanalysis other than those of a therapeutic nature have been largely in the area of data collecting and hypothesis framing. The former have at times seemed unwieldy and the latter exuberant, but under the duress of present-day methodology, data and hypotheses are being subjected to the scrutiny of searching but still developing techniques.

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Many have hoped that further understanding of the neuroses might arise from the contributions made by the Russian conditioned-reflex school. On the whole this has been disappointing. Magnificent though the discoveries of the great Pavlov were, they have not influenced psychiatric thought, practice and research in Western culture to any marked extent so far. The taking over of conditioned reflex theory by Soviet psychiatry was a phenomenon seemingly dictated by national and political exigencies. However, Pavlov's work is now exerting more influence in Western experimental psychology and, in a limited way, psychiatry. It is probably safe to say that this inspired Russian's contribution, though it has had an esoteric place in Russian psychiatry, has probably not interfered with many effective therapeutic procedures there, even though in describing them, they are couched in the specific terms of that frame of reference.

A fresh and encompassing view of psychiatric syndromes including the neuroses was furthered by Adolf Meyer who was the dominant figure in American psychiatry for the first 40 years of this century. He introduced the best from European psychiatry and this in turn was exported back to England by his pupils. His great learning and leadership established the point of view called "psychobiology" in which he abandoned the concept of individual diseases, preferring to speak of reaction types. One of the greatest contributions was his continued insistence that the organism reacts as a whole. This was of importance at a time when the mind and body were still held to be entirely separate. He searched the intellectual developments of the time, attempting to apply them to psychiatry. He introduced a lot of new terms, but his complicated categorization did not long survive.[24] He was nôt an experimentalist but performed the role of that very essential precursor of controlled investigation, the clinical scholar. Essentially a man of the period of the great transition in psychiatry from description to action, his great contribution was "his immense width of interest, his enormous knowledge, his insistence on maintaining a down-to-earth, common-sense approach to the problems of human behaviour, and the inspirational quality which he possessed which stirred and moved so many of his students as well as those who knew him only from his writings."[35] In other words, he did what no other American psychiatrist did so well for future dramatic developments. He held open the door.

CONCLUDING COMMENTS

To recapitulate briefly, in the centuries of development which have been reviewed we see that medieval attitudes prevented the study of both the physically ill and the mentally deviant. The Renaissance removed some ancient prohibitions and anatomical dissection began. Two centuries passed, occupied by great advances in the physical sciences. The stage was set for the age of Enlightenment, and the development of the climate suitable to dissolution in the belief in witchcraft and adapted to faith in the power of reason and the reasonableness of considering deranged minds.

Salient advances in clinical medicine occurred in the 17th and 18th centuries but have no counterpart in psychiatry until the 19th century, when it became respectable to observe the mentally ill, and it was believed that psychiatric processes were susceptible to biological study and not controlled by external irresponsible demonic forces. Thus the flowering of clinical psychiatry began only 250 years after Sydenham. While an organic point of view sufficed for the greatest advances in medicine and substantial contributions were made to psychiatry by the same approach as the result of work on medical conditions affecting the brain, it did not supply the lead or means for understanding psychological processes. The techniques so appropriate to the development of clinical medicine and research therein did not prove to be similarly applicable to psychiatry.

Psychiatry therefore is not solely the offspring of medicine and the sciences basic to it, but must be regarded as originating also in ancient humanistic disciplines and in the more recently developed social sciences. Despite their erudite development, the latter have not yet established as firm a set of findings and concepts of an indubitable use in psychiatry as those provided by physiology for medicine. These facts explain the limitations in the extent and pace of psychiatry's development. Precise description of the debt owed by psychiatry to the non-medical disciplines calls for separate and extensive consideration at another time.

Progress in psychiatry in the last 50 years has been largely the result of empirical advances and the result of conceptual thinking along psychological lines. There is, however, a difference in the application of empirical advances in psychiatry today compared with those of two centuries ago in medicine. In the scientific climate of the present century, they have been exploited with much greater vigour and appropriateness than were those in medicine of the 18th century. Modern treatment in psychiatry has been transformed in two ways: by the somatic therapies including psychotrophic drugs and by the change in outlook with appreciation of emotional and psychological forces, which has given rise to the psychotherapies. Such developments of the past few years hardly belong to the roots of medicine or psychiatry and an adequate account of the recent participation of anthropology, biochemistry, psychology and sociology in the evolution of present-day psychiatric thought, practice and research is beyond the scope of this paper.

The field of psychiatry is currently growing under the impact of fresh approaches, but the establishment of unequivocal concepts, therapies and research techniques awaits the maturation of the wide variety of disciplines on which it depends for the certainty that medicine currently enjoys.

I wish to express my appreciation of the constructive criticism offered by Dr. L. G. Stevenson.

REFERENCES

1. CLEGHORN, R. A.: *Canad. M. A. J.*, **84**: 834, 1961.
2. PARKES, A. S.: *Perspectives Biol. Med.*, **1**: 366, 1958.
3. BARZUN, J.: The house of intellect, Harper & Brothers, New York, 1959.
4. PERELMAN, S. J.: The road to Miltown, Simon & Schuster, Inc., New York, 1957.
5. SINGER, C.: A short history of medicine, Clarendon Press, Oxford, 1928.
6. *Idem*: A short history of science to the nineteenth century, Oxford University Press, London, 1941.
7. ACKERKNECHT, E. H.: A short history of medicine, Ronald Press Company, New York, 1955.
8. FREUD, S.: Collected papers. Vol. V, edited by James Strachey. International Psychoanalytical Library, No. 37, Hogarth Press, London, 1950, p. 367.
9. VEITH, I.: *Am. J. Psychiat.*, **114**: 385, 1957.
10. CLEGHORN, R. A.: *Internat. Rec. Med.*, **166**: 175, 1953.
11. SNOW, C. P.: The two cultures and the scientific revolution, Cambridge University Press, New York, 1959.
12. ATCHLEY, D. W.: *Atlantic Monthly*, **198**: 29, August 1956.
13. ZILBOORG, G. AND HENRY, G. W.: A history of medical psychology, W. W. Norton & Company, Inc., New York, 1941.
14. ACKERKNECHT, E. H.: A short history of psychiatry, Hafner Publishing Company, New York, 1959.
15. CONANT, J. B.: Modern science and modern man, Doubleday & Company, Inc., New York, 1953.
16. THILLY, F.: A history of philosophy, Henry Holt & Co., New York, 1914.
17. BERLLIN, I.: The age of enlightenment, Mentor Books, New York, 1956.
18. DE SAUSSURE, R.: *Ciba Symposia*, **11**: 1222, 1950.
19. GRIESINGER, W.: Mental pathology and therapeutics, translated from the German (2nd ed.) by C. L. Robertson and J. Rutherford, The New Sydenham Society, London, 1867.
20. HEBB, D. O.: *Am. J. Psychiat.*, **111**: 826, 1955.
21. DOLLARD, J. AND AULD, F., JR.: Scoring human motives, Yale University Press, New Haven, 1959.
22. KAHN, E.: *Am. J. Psychiat.*, **113**: 289, 1956.
23. BRACELAND, F. J.: *Ibid.*, **113**: 871, 1957.
24. ZILBOORG, G.: *Ibid.*, **114**: 289, 1957.
25. BAILEY, P.: *Ibid.*, **113**: 387, 1956.
26. GALDSTON, I., editor: Freud and contemporary culture, International Universities Press, Inc., New York, 1957.
27. JONES, E.: The life and work of Sigmund Freud. Vol. I: The formative years and the great discoveries, Basic Books, Inc., New York, 1953.
28. RIESE, W.: *J. Nerv. & Ment. Dis.*, **127**: 287, 1958.
29. STENGEL, E.: *Internat. J. Psycho-Analysis*, **35**: 85, 1954.
30. MARGETTS, E. L.: *Psychiat. Quart.*, **27**: 115, 1953.
31. ELLENBERGER, H.: *Bull. Menninger Clin.*, **21**: 3, 1957.
32. WHYTE, L. L.: The unconscious before Freud, Basic Books, Inc., New York, 1960.
33. APPEL, K. E.: Freud and psychiatry, *In*: Freud and contemporary culture, edited by I. Galdston, International Universities Press, Inc., New York, 1957, p. 3.
34. ZILBOORG, G.: Freud in the perspective of medical history, *In*: Freud and contemporary culture, edited by I. Galdston, International Universities Press, Inc., New York, 1957, p. 53.
35. CAMERON, D. E.: Personal communication, 1961.

CASE REPORTS

AORTO-ESOPHAGEAL FISTULA: AN UNUSUAL COMPLICATION OF ESOPHAGO-GASTROSTOMY, FOLLOWING RESECTION FOR CARCINOMA OF THE ESOPHAGUS

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AORTO-ESOPHAGEAL fistula is a rather uncommon condition.[1] A study of the previously reported cases of aorto-esophageal fistulae shows that the majority are the result of swallowing foreign bodies,[2, 3] most of which are fish, poultry or rabbit bones. There are many cases also in which the cause of the perforation into the aorta was fungating carcinoma of the esophagus.[4] In one instance an esophageal diverticulum was responsible for the perforation. One case has been reported in which an esophagopleural communication was aggravated by monilial infection producing severe mycotic tension pyopneumothorax and a concomitant aorto-esophageal fistula.[5] Isolated cases of perforation of the thoracic aorta by penetrating peptic ulcers of the esophagus have been reported by several authors.[6, 7] Bullet wounds causing similar fistulae have also been noted.

In reviewing the literature, we found reported only four cases of esophageal perforation into the aorta following esophago-gastrostomy; one resection was performed for esophageal stricture due to ingestion of lye[8] and three resections were carried out for esophageal carcinoma.[9, 10] In one of the latter three cases, the perforation was caused by a misplaced suture passing through the media of the aorta and the esophago-gastric anastomosis. In another case, leakage at the suture line on the 17th postoperative day was followed by an esophagopleural fistula, which was sealed by the juxtapositioned aorta. The third case was ascribed to the necrotizing digestive effect of acid gastric juice on the tissues of the aortic wall. In our case, the presence of yeast-like organisms (most likely Candida) in the deep tissues of the fistulous tract and their apparent invasion of the aortic wall suggest that these organisms were a probable contributory factor—if not a causative one—in the development of the fistula. The unique nature of this probable pathogenesis makes this case of interest.

A.R., a 68-year-old white man, was first admitted to the Henry Ford Hospital, Detroit, Michigan, on September 24, 1960.

He had been in good health until a month prior to admission, when he developed difficulty in swallowing. At the time of admission the patient was able to swallow clear fluids only. In the last four weeks, he lost 10 lb. Radiographic examination of the upper gastrointestinal tract was reported to show a filling defect three inches long, in the midportion of the esophagus,

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with moderate dilatation of the upper half of the esophagus.

Physical examination was essentially negative. Laboratory findings revealed a normal blood picture and negative urinalysis. His serology was non-reactive. Values for urea nitrogen, alkaline phosphatase, cephalin-cholesterol flocculation, thymol turbidity and prothrombin time were all within normal limits. Esophagoscopy showed a fungating firm lesion, 13 inches below the upper teeth. Biopsy taken from this region was reported as epidermoid carcinoma.

On October 3, 1960, a left, low posterolateral thoracotomy was performed, with resection of the seventh rib. A mass the size of a golf ball was demonstrated in the esophagus just below the left main stem bronchus. The diaphragm was opened and the lesser curvature was cleaned off from the pylorus toward the stomach, removing all the lymphatic and adipose tissue. The stomach was resected from the fundus down to a point approximately half way on the lesser curvature, which converted the stomach into a tubular structure utilizing the greater length of the greater curvature. The esophagus was transected first below the aortic arch, but since tumour cells were found in the submucosa at the line of resection, another segment of proximal esophagus was excised. After the anastomosis was completed, the stomach was tacked to the left pleura for support. Diaphragmatic closure was then completed and the stomach was tacked to the margin of the hiatus to prevent herniation of the abdominal contents into the chest.

The resected portion of esophagus was 18.5 cm. long and 5.8 cm. in circumference at the proximal line of resection. In the proximal part of the esophagus there was a large tumour measuring 5.5 cm. in diameter extending almost to the edge of the resection. The rest of the esophageal mucosa was pale pink and slightly thickened.

Microscopic examination showed well-differentiated epidermoid carcinoma extending deep into the submucosal and muscular layers. In one area, the tumour almost reached the serosa but did not penetrate it. No invasion of the perineural or perivascular lymphatics was noted. Sections taken from the separate segment of the esophagus and from 14 regional lymph nodes showed no evidence of tumour.

The patient had a violent postoperative course. An emergency tracheostomy had to be carried out on October 5 because the patient developed acute respiratory distress due to retained secretions. He became very dyspneic and apprehensive. Moist rales were heard in both lung bases and the neck veins were markedly distended. Early left ventricular failure was diagnosed and the patient was digitalized. His temperature rose to 105° F. but gradually subsided on antibiotic therapy. An electrocardiogram taken on October 10 showed atrial flutter. After a few days of intravenous feeding he was given liquids by mouth. From that time on his general condition rapidly improved and on October 27 he was ambulatory and taking five meals a day. On November 1, he was discharged from the hospital.

The patient was asymptomatic after discharge, except for some weakness. On November 10 he had an acute episode of hematemesis which soon stopped spontaneously. He had no complaints until late afternoon, when he experienced moderate epigastric discomfort, but had no more bleeding. He was seen in the hospital emergency room, where he was found to be pale, cold and clammy, and was readmitted. His blood pressure was 94/60 mm. Hg and his hemoglobin value 8.8 g. %. The hematocrit was 28%, and the white blood cell count 7600/c.mm. Physical examination showed epigastric tenderness with some muscular guarding; bowel sounds were hyperactive. On November 11 at 6 a.m., the patient had profuse hematemesis. A venous cutdown was performed on both the right and the left legs and blood was administered but no blood pressure reading was ever obtained. He vomited again, a large amount of blood, and continued bleeding until 9.35 a.m., when his heart stopped.

Fig. 1.—Aorto-esophageal fistula.

Postmortem Findings

Examination of the chest at autopsy showed that the esophagus had been resected at the junction of its proximal and middle thirds. A tube formed from the greater curvature of the stomach was anastomosed to the esophagus. The suture lines of this esophago-

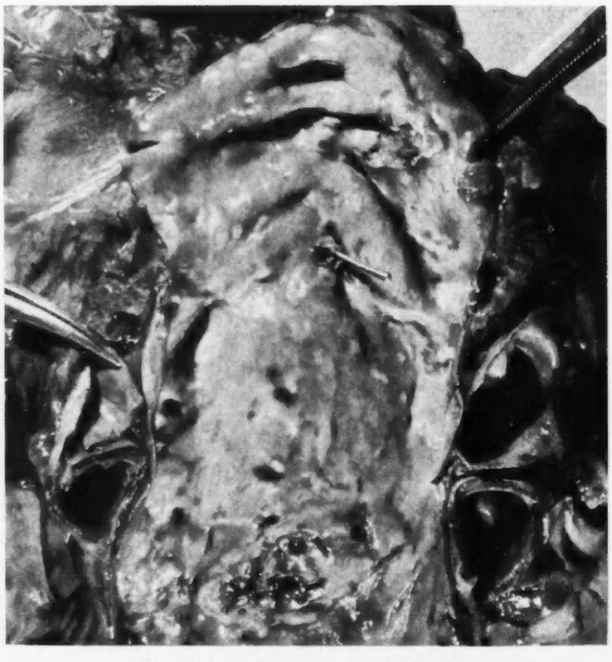

Fig. 2.—Aorto-esophageal fistula.

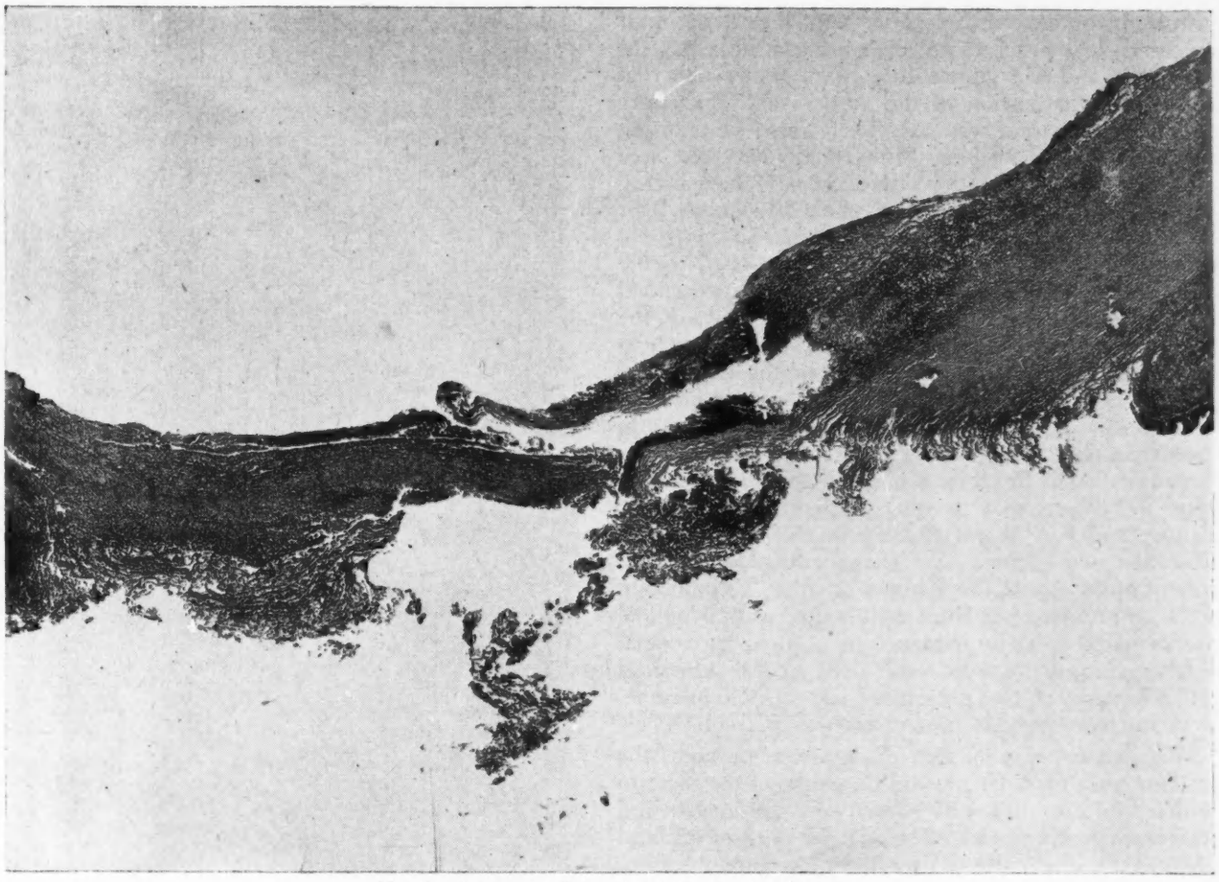

Fig. 3.—Aorto-esophageal fistula, × 22, H & E.

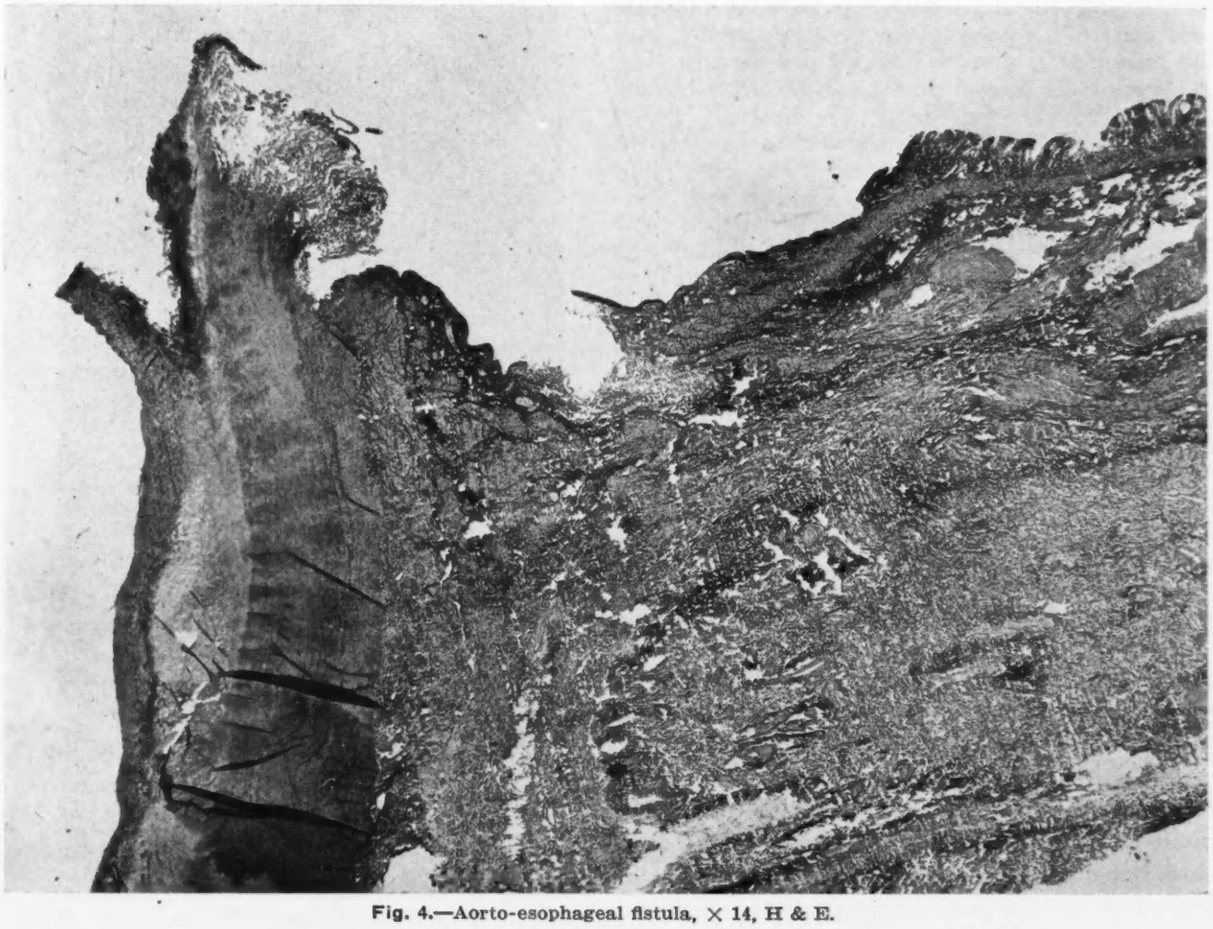

Fig. 4.—Aorto-esophageal fistula, × 14, H & E.

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gastrostomy were easily visible and the anastomosis appeared leak-proof. The posterior surfaces of the esophagus and the gastric tube were firmly adherent to the anterior portion of the aortic wall. The entire gastrointestinal tract was completely filled with bright red clotted blood. There was a small ulcerated area approximately 3 mm. above the gastro-esophageal anastomosis on the posterior surface of the esophagus. This ulcerated area measured 5 mm. in diameter (Fig. 1). The edges of this defect were firmly attached to the arch, forming a fistulous tract. This fistula extended to and actually penetrated the entire thickness of the anterior wall of the thoracic aorta just below the aortic wall. A probe was passed from the esophageal opening of the fistula and the aorta was opened on its posterior aspect. The probe entered the aorta approximately 2 cm. below the aortic arch. The aortic opening of this fistula measured 3 mm. in diameter (Fig. 2). There were several yellowish atheromatous plaques and foci of calcification in the aorta, but no ulceration was found. No significant plaques were present at the site of the fistulous opening. Examination of the surrounding organs, lymph nodes, and abdominal viscera failed to show evidence of residual carcinoma. Further autopsy findings were: left pleural adhesions and adhesions of the pericardial sac to both pleurae. Moderate coronary arteriosclerosis was present.

Microscopic examination of sections through the fistulous tract (Fig. 3) showed the edges of the ulcer to be necrotic, surrounded by plasma cells, histiocytes and proliferating fibroblasts. The deeper tissues around the fistula were infiltrated by yeast-like organisms invading the adventitia and media of the aorta. In this area, the fibres of the media of the aorta were broken up and contained micro-organisms (Fig. 4). Foreign-body giant cells, some containing suture material, were also present some distance from the necrotic area (Fig. 5). These areas showed the typical picture of foreign-body granulomas. Subintimal atheromatous plaques and foci of calcification were seen in the aorta. At the site of the anastomosis, the serosa of the gastric tube showed a marked granulomatous reaction with fibroblastic proliferation and numerous newly formed capillaries. Many macrophages were present, loaded with blood pigment. Some displaced esophageal epithelium was found in the serosa of the stomach with surrounding granulomatous reaction. The presence of the yeast-like organisms was confirmed by special stains (Grocott and Gridley). Since the organisms were not cultured, positive identification was not possible. Basing their identification on histological appearance only, they most likely belonged to the genus Candida (Figs. 6 and 7).

DISCUSSION

All three previously reported cases of aorto-esophageal fistula following esophago-gastrostomy for carcinoma of the esophagus have been preceded by a stormy febrile postoperative course. This applies also to our case. The time intervals between operation and the fatal hemorrhage in the three cases were 12, 81 and 40 days, respectively. Our patient survived the operation by 39 days. The causes of the perforation in the three reported cases have been noted above. As to the cause of the perforation in our patient, we can only speculate.

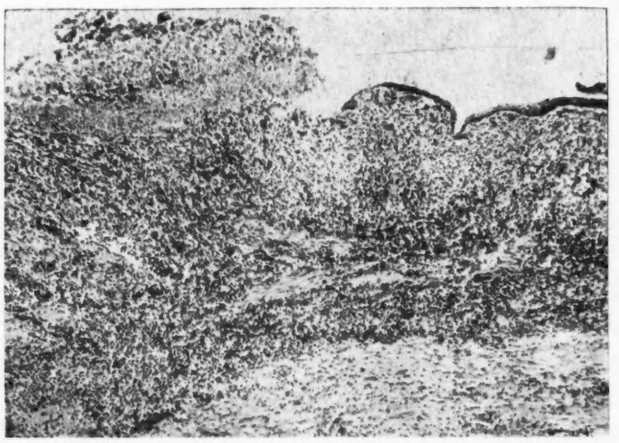

Fig. 5.—Aorto-esophageal fistula, × 77, H & E.

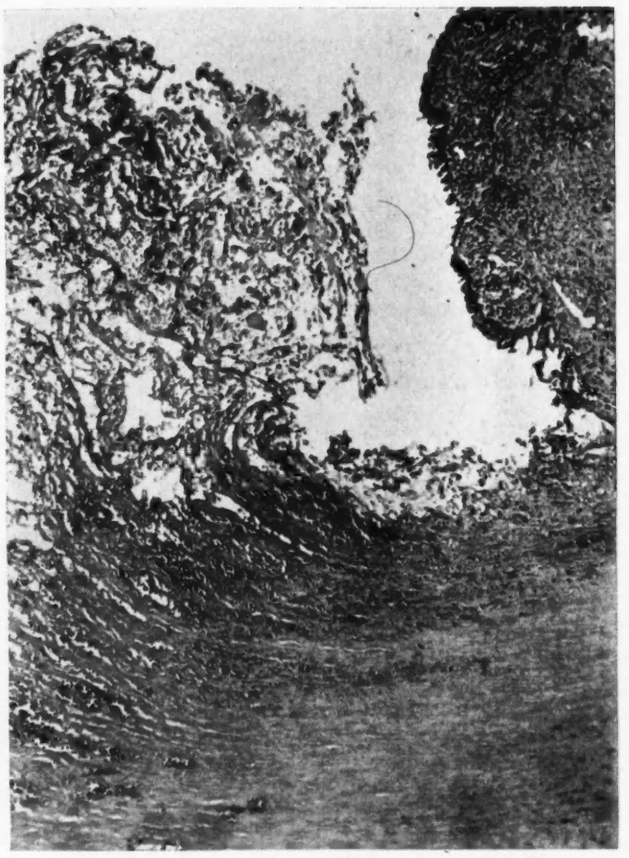

Fig. 6.—Aorto-esophageal fistula, × 90, H & E.

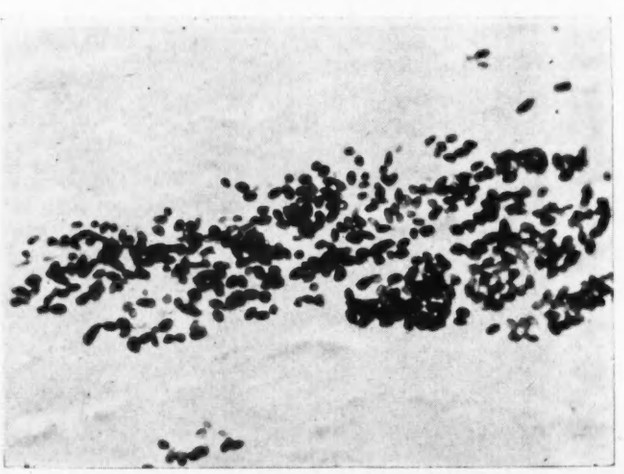

Fig. 7.—Aorto-esophageal fistula, × 865, Grocott.

Although there were a number of foreign body giant cells, some of them containing suture material, in the microscopic sections, associated with foreign-body granulomas, these were at some distance from the perforation. The granulomatous character of the inflammatory reaction at the site of perforation was more suggestive of mycotic infection than of an uncomplicated peptic ulcer. The integrity of the esophagus at the site of the perforation may have been compromised by impairment of the blood supply and thus made more readily subject to the effects of the acid gastric juice. We believe that this primarily peptic ulcer was secondarily invaded by yeast-like organisms, probably Candida. The presence of the latter, unfortunately, was not suspected at the time of the autopsy and no culture was taken. The presence of these organisms in the wall of the fistulous tract penetrating deeply into the wall of the aorta and the absence of the same organisms in the surrounding areas lead us to suspect that they probably played an important part in the causation of this perforation.

SUMMARY

A case of aorto-esophageal fistula is reported resulting in the death of the patient, who previously underwent esophago-gastrostomy for carcinoma of the esophagus. Primary peptic ulcer, due to the digestive effect of gastric juice at a site of lessened resistance, and secondary invasion by yeast-like organisms as a contributory factor, are proposed as causes of this unusual complication of esophago-gastrostomy.

REFERENCES

1. OPPENHEIM, H.: *Dis. Chest*, 17: 450, 1950.
2. BANK, R. S.: *J. A. M. A.*, 122: 1011, 1943.
3. THOMPSON, G.: *J. Laryng. & Otol.*, 69: 494, 1955.
4. SCHATTENBERG, H. J. AND ZISKIND, J.: *Am. J. Clin. Path.*, 9: 615, 1939.
5. SMITH, J. AND BRODMAN, H. R.: *Dis. Chest*, 24: 66, 1953.
6. CHRISTOPHERSON, J. B.: *Lancet*, 1: 369, 1917.
7. COUVES, C. M., HOWARD, J. M. AND AMERSON, J. R.: *Am. J. Surg.*, 95: 878, 1958.
8. POWELL, M. E.: *Brit. J. Surg.*, 45: 55, 1957.
9. MAGUIRE, A. C. AND MITCHELL, N.: *Surgery*, 22: 842, 1947.
10. MERENDINO, K. A. AND EMERSON, E. C.: *J. Thoracic Surg.*, 19: 405, 1950.

ADDISON'S DISEASE WITH PSYCHOSIS

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SINCE Engel and Margolin[6, 7] in 1942 first clearly described the frequency of abnormal psychic states in Addison's disease, a rising interest in this association has been manifested. Prior to this, reports had been published from time to time, since Addison[1] first described the disease in 1849, of deviant mental states associated with Addison's disease, but not until 1942 was interest re-stimulated when it was suggested that emotional changes were closely related to physical crises. Engel and Margolin were impressed by the evidence of disturbed carbohydrate metabolism in Addison's disease and especially by the fact that hypoglycemic symptoms may develop at higher glucose levels than in normal persons. Further work has been carried out by Cleghorn,[2-5] who in 1951 obtained results strikingly similar to those reported by Engel and Margolin, with the exception that in his series of 25 cases he noted that these patients were under treatment with desoxycorticosterone acetate and salt most of the time, and that psychological deviations persisted despite such therapy. Smith[8] has recently reviewed the literature relative to this subject and concluded "the incidence of emotional disturbance in Addison's disease is high . . . [those] reaching psychotic proportions is much smaller and in most of these there is evidence of metabolic disturbance . . . [but] in some the relationship to biochemical change is not obvious." The following is a report of a patient with Addison's disease who was observed over a continuous two-year period at the Provincial Mental Hospital, Essondale, B.C.

E.L. was first admitted to the Provincial Mental Health Services on March 3, 1958, having been transferred from a general hospital after treatment for acute adrenal insufficiency. The diagnosis of Addison's disease was established in 1949 when he suddenly began to feel weak and lost the use of his legs. At that time he noticed that when he sat in the sun for a while, or in any warm place, it made him extremely weak. Also at that time he had no appetite and lost a great deal of weight, following which he began to vomit. Treatment with desoxycorticosterone acetate (DOCA) was then commenced. From that time until his crisis in February 1958 he required implantation of DOCA pellets every nine to 16 months. In February of 1958 he again went into addisonian crisis and was admitted to a general hospital in a semicomatose state. He was treated for his acute adrenal insufficiency, and as his body chemistry began to return to normal the patient became acutely psychotic. He stated that while in the general hospital he felt that he was interfering with hospital regulations in some way and kept hearing his own voice and other people's voices, especially voices of other members of his family. The voices told him to pull down the blinds, to keep the doors closed, and that his hair was standing on end. These things made his teeth chatter and he was very much afraid. He was particularly bothered by sounds and felt that people were deliberately making noises in order to annoy him.

This psychotic episode was brief in nature with the exception of a persistence of his auditory hallucinations,

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which he reported to his sister. Following his discharge as a voluntary patient, on the way home, he spoke frequently to his sister of voices from the mental hospital, talking to him. His behaviour was somewhat bizarre in that he asked to visit strange addresses and searched for people under beds and in closets when he did get home. Because of this the patient was then certified after being out of hospital one day. After his readmission to hospital his electrolyte values were found to be within normal limits but he appeared overhydrated with signs of myxedema. His basal metabolic rate was minus 49, and his serum cholesterol level was 332 mg. %. Treatment with thyroid extract, 15 mg. daily, was started. His skin was pigmented. Psychologically he appeared very lethargic and was seclusive. Physically the patient's Addison's disease remained well controlled and he was receiving 25 mg. of cortisone daily. A divided dosage of 64 mg. daily of perphenazine (Trilafon) was commenced after his admission when he was having hallucinations. Under this treatment the patient reported that these diminished. At the same time he became better able to socialize. The patient remained in hospital for a continuous four-month period during which time no other impairment of his psychic functioning could be detected and there were no other symptoms of his physical illness although his hallucinations persisted. He was eventually discharged in August 1958, by which time the voice had been identified as belonging to a girl friend of his sister who had moved to the United States some short time before. At the time of his discharge no evidence of psychosis was apparent and his serum potassium and sodium levels were within normal limits. His fasting blood glucose level was 80 mg. %. The blood sugar curve tended to be rather low and flat, running from 80 mg. % to 100 mg. %. He was discharged on a maintenance dose of cortisone, 25 mg. daily, as well as thyroid 30 mg. daily, and a two-week supply of perphenazine (Trilafon).

The patient was next admitted to the Provincial Mental Health Services on December 23, 1958. His chief complaint was that he had been hearing a voice for approximately two months and it had begun to disturb him so badly that he decided to readmit himself to hospital as a voluntary patient. At this readmission he was quite composed, relaxed, and showed little anxiety. He presented as a very quiet, retiring, cooperative and pleasant young man in fair physical condition although he had lost 10 lb. during the previous three months. At this time it was 10 months since he had had his last DOCA implant and in the last month prior to admission he found it necessary to take extra salt, as he had an occasional period of weakness.

The patient remained in hospital for approximately eight months during which time his metabolic state remained well stabilized and he was carried on cortisone 25 mg. daily, perphenazine 8 mg. four times daily, and thyroid extract. During this time he gradually improved but continued to have occasional auditory hallucinations. These stopped when he became interested in a female patient for a short period but returned when she rejected him. The voice told him what a bad fellow he was, but he had come to accept this voice and it did not disturb him unduly. As therapeutic measures did not appear to rid him entirely of his hallucination, a change of emphasis was made towards having him accept this hallucination as being part of himself. This the patient appeared to do, but then became quite ambivalent about leaving hospital. Arrangements were completed for him to return to the community and he was discharged in September of 1959.

The patient was next admitted in January 1960, again complaining that the voice had become intolerable. He stated that he had been hearing it continuously since his first admission in February of 1958. After his admission the voice remained tolerable and his Addison's condition stabilized until February 1960, when he again went into addisonian crisis and became frankly psychotic. He remained in this state for approximately two months, during which time he became very dependent on the hospital and his therapist, requiring continual reassurance through daily interviews or sometimes as many as two or three interviews of short duration during the day. By the middle of March 1960, his electrolyte pattern had returned to normal but he remained actively psychotic, and was depressed and agitated. To alleviate these symptoms, while covered by 100 mg. of cortisone given intramuscularly half an hour beforehand, he was given a total of seven electroconvulsive treatments which lifted the depression but produced little change in his hallucinations.

At this time, E.L. became interested in a female patient in the continuing treatment ward and it is suspected that this affair included sexual experience. After the development of the relationship the patient stated that his voice was no longer a problem to him, and he was thinking of getting married to this girl.

He was assessed by the psychologist and found to be functioning within the average range of general intelligence without any indication of intellectual impairment. A strong indication of a schizoid personality employing isolation as the main ego-defence was present, as were hostility, passivity and schizoid features. In summary, the psychologist felt at the time of testing that the patient was free of any psychotic or neurotic symptoms but could be expected to demonstrate an overt schizophrenic reaction of a paranoid type under stress, apart from any metabolic disturbance due to his somatic disorder.

Pertinent information from the personal history revealed that he was born on February 20, 1931. He was well until 14 years of age when, because of exophthalmos, thyroid function was assessed. At 16 years of age his thyroid function was reassessed, some medication being prescribed for a three-month period. Other endocrine disorders in the family include diabetes mellitus in the paternal grandmother and some thyroid disorder that necessitated thyroidectomy in the mother, some years ago.

Marital discord between the parents is indicated by divorce, remarriage to each other and a current separation. Despite this the patient considers his childhood as a generally satisfactory and happy experience.

DISCUSSION

To a large extent, the orientation of most workers has been biochemical in their observation and discussion of psychoses associated with disturbed endocrine function. This emphasis is understandable, considering that adrenocortical dysfunction can undoubtedly produce psychotic reactions. In the case under discussion, the personal history is not suggestive of a schizoid pattern of functioning.

There is evidence of familial endocrine disturbance as elicited by his paternal grandmother's history of diabetes mellitus, and presumably his mother was suffering from thyroid dysfunction. The patient's disturbed mental functioning first occurred in 1958 after an addisonian crisis, although he had been investigated previously for thyroid dysfunction about the age of 14 and was diagnosed as having Addison's disease in 1950. His present reaction since 1958 until the present has been of a paranoid schizophrenic nature with agitation, depression, irritability and hostility apparent, but this could be viewed more as a reaction to his physiological state than as a progressive disease. As his physiological state deteriorated, his mental state also deteriorated; and as his dependency needs were satisfied concomitant with treatment and improvement of his physiological state, the psychological state also improved. Also on two occasions during hospitalization when he apparently was obtaining sexual gratification there was a marked improvement in his psychological state, evinced by the absence on one occasion and lessening on another of his hallucinations. We believe that the benefits derived from supportive psychotherapy on the one hand and informal psychosexual expression in heterosexual relationships on the other support Smith's contention that the "possibility of psychotherapy in addition to the standard medical treatment should always be kept in mind".

At the present time, in addition to the disability due to his illness, the patient has developed a dependency relationship with the hospital and tends to see it as his home. In so far as his needs are satisfied by the hospital milieu and his physiological state is stabilized, he has tended to improve and maintain a state of improvement, but with their deterioration his mental state has tended also to deteriorate and when this is followed by a marked deterioration in his physical condition, his psychotic and mental state deteriorate markedly as well. Probably the best that can be hoped for this patient is repeated hospitalizations of a few months alternating with similar brief periods in the community.

SUMMARY

A brief review of the recent literature on the association of Addison's disease with psychosis has been made, along with the presentation of a case of Addison's disease with psychosis observed over a period of two years. An attempt has been made to indicate that, in this case at least, a correlation has tended to exist between his physical and mental state as well as a correlation between the satisfaction of his dependency needs and his mental state.

The authors are indebted to Dr. T. G. Caunt, Superintendent, Provincial Mental Hospital, Essondale, for permission to submit this case report for publication.

REFERENCES

1. ADDISON, T.: On the constitutional and local effects of disease of the supra-renal capsules, S. Highley, London, 1855.
2. CLEGHORN, R. A.: *Canad. M. A. J.*, **65**: 449, 1951.
3. CLEGHORN, R. A. AND PATTEE, C. J.: *J. Clin. Endocrinol.*, **14**: 344, 1954.
4. CLEGHORN, R. A.: Observations on the mechanism of the disordered psychological outlook in Addison's disease and hypopituitarism, *In*: Ciba Foundation Colloquia on Endocrinology, Vol. III, edited by G. E. W. Wolstenholme, J. & A. Churchill, Ltd., London, 1952, p. 141.
5. *Idem*: *Canad. J. Biochem. & Physiol.*, **34**: 390, 1956.
6. ENGEL, G. L. AND MARGOLIN, S.: *Arch. Neurol. & Psychiat.*, **45**: 881, 1941 (abstract).
7. *Idem*: *Arch. Int. Med.*, **70**: 236, 1942.
8. SMITH, C. M.: *Canad. Psychiat. A. J.*, **3**: 145, 1958.

CANADIAN JOURNAL OF SURGERY

The July 1961 issue of the *Canadian Journal of Surgery* contains the following original articles, case reports and experimental surgery:

History of Canadian Surgery: Abraham Groves—C. W. Harris.

Original Articles: Enterocele and prolapse of the vaginal vault—K. T. MacFarlane and D. E. R. Townsend. Acute surgical disease of the abdomen complicating pregnancy—R. A. Macbeth. Rupture of the liver in children: a 34-year review at the Hospital for Sick Children, Toronto—S. A. Thomson and N. W. Mortimer. Report of 41 cases of rupture of the spleen—F. G. Fyshe and S. E. O'Brien. Traumatic hemobilia—J. C. Fallis and C. A. Stephens. Spontaneous rupture of the esophagus—N. T. McPhedran. L'infiltration péridurale continue dans les fractures multiples de côtes—M. Trahan and F. Hudon. Excision of the carpal scaphoid for ununited fractures—H. S. Gillespie. Experience in the surgical management of duodenal and gastric ulcers—A. J. Grace. Carcinoma amongst Labrador Eskimos and Indians—G. W. Thomas. Basal cell sarcoma—S. Gordon.

Case Reports: Massive hemorrhage due to diverticular disease of the colon: a case illustrating the bleeding point—I. Salgado, G. K. Wlodeck, W. H. Mathews and H. Rocke Robertson. Rupture and stenosis of mainstem bronchus—R. H. Craig. The tibialis anterior sesamoid—R. A. Haliburton, E. G. Butt and J. R. Barber.

Experimental Surgery: Further experiences with the use of nitrogen mustard as an adjunct to operation in the treatment of cancer—J. A. McCredie and W. R. Inch.

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SHORT COMMUNICATION

SUBCUTANEOUS PHLEBITIS OF THE BREAST (MONDOR'S DISEASE)

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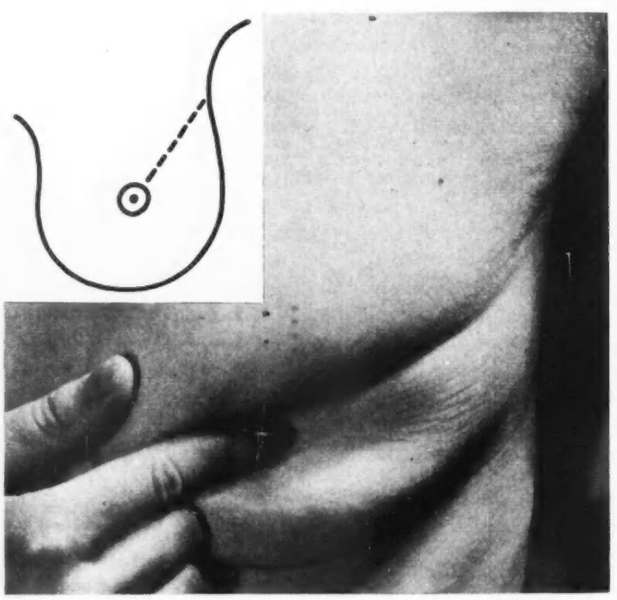
PHLEBITIS of the subcutaneous veins of the mammary region is uncommon but not rare, as evidenced by the author's experience of seeing this lesion on five occasions in the past five years. The last three patients were examined during a period of fifteen months, and will be reported in some detail.

CASE 1.—Mrs. H.H., aged 26, para 1, gravida 1, had made a plane trip from Germany to Vancouver on December 18, 1958. During this trip she carried a heavy typewriter under her left arm. On December 27, 1958, she noticed a "painful cord" over the left breast. She was examined on January 6, 1959. The breasts were well developed but not pendulous. When the left nipple was displaced downward and medially there was a trench-like depression extending from the areola to the axilla (Fig. 1). On palpation a 3-mm. fibrous

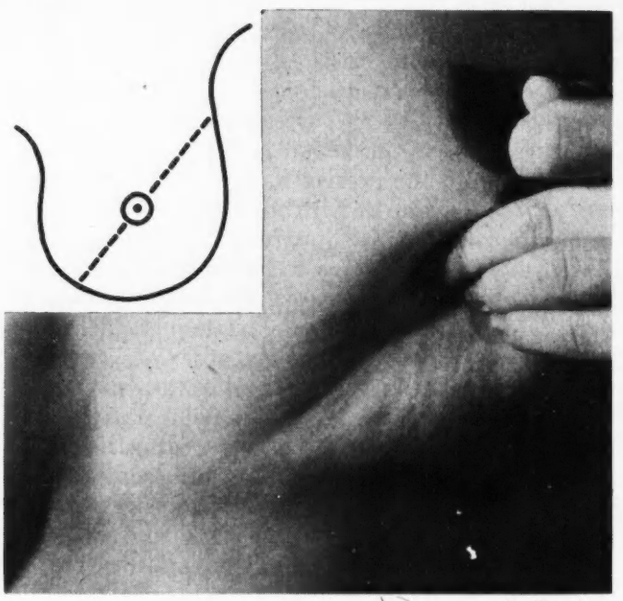


F. Hertzog

Fig. 1.—(Case 1) Furrow extending from areola to axilla.

cord ran along this depression, ending in a small nodule deep to the areola. The remainder of the breast and axillary examination was normal.

The patient was reassured when told that she had a simple phlebitis of the breast, probably related to carrying the typewriter. On January 20, she reported again, stating that four days previously she had noticed discomfort, slight bruising and "cord" formation over the lower inner side of the same breast. Examination disclosed a cord running from the areola down to the epigastrium, with bow-stringing of the inframammary fold on elevating the breast (Fig. 2). She was again reassured, for the lesion over the upper outer quadrant of the breast had resolved to the extent of approximately 50%. Unfortunately, the patient was lost to further follow-up.



F. Hertzog

Fig. 2.—(Case 1) Subsequent development of phlebitis across lower inner quadrant of breast.

CASE 2.—Mrs. A.B., aged 45, para 1, gravida 1, had been curling in a bonspiel one week before examination. She had been sweeping very vigorously during the games and wondered if she had "strained" her right breast. The family physician and, particularly, the patient were very worried about cancer.

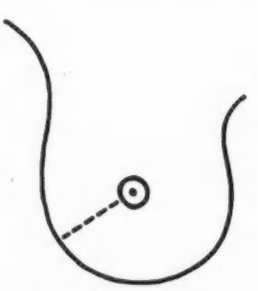


Fig. 3—(Case 2) The area of phlebitis is depicted.

Examination on January 20, 1959, disclosed a tender cord running downward and laterally from the right areolar area to the chest wall (Fig. 3). On raising the right arm there was a definite puckering over the lower quadrant of the breast and on raising the breast there was a visible cord passing over the inframammary fold. The cord was 2 to 3 mm. in diameter and was moderately tender. The patient was greatly relieved when told the nature of her illness. The cord gradually subsided during the next six weeks.

CASE 3.—Mrs. E.S., aged 63, para 3, gravida 3, had been suffering from arthritis for two years. For a period of six weeks she had been doing quite strenuous exer-

(Continued on page 37)

NEWS & VIEWS
ON THE ECONOMICS OF MEDICINE

Prepared by the Department of Medical Economics. The Canadian Medical Association

JULY 1, 1961, NUMBER 19

Our sources of information are private communications and published comments in medical journals and the lay press. These are usually reliable but incorrect quotation or interpretation is always possible.

The long-awaited announcement of the personnel of the Royal Commission on Health Services and its terms of reference was made by the Prime Minister in the House of Commons on June 20, 1961.

The scope of the studies which will be undertaken and the members of the Royal Commission are indicated in the following statement:

"AN ORDER IN COUNCIL ESTABLISHING A ROYAL COMMISSION ON HEALTH CARE

"The Committee of the Privy Council have had before them a report from the Right Honourable John G. Diefenbaker submitting that, while recognizing that the power to make laws relating to health services is, except in limited fields, within the jurisdiction of Provincial Legislatures, it is considered to be in the public interest to have a comprehensive and independent study made of the needs of the Canadian people for health services and the resources available to meet such needs with a view to recommending methods of ensuring that the best possible health care is available to all Canadians.

"The Committee, therefore, on the recommendation of the Prime Minister, advise that:

Chief Justice E. M. Hall, Saskatoon, Sask. (Chairman)

Mr. M. Wallace McCutcheon, Toronto, Ont.

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be appointed Commissioners under Part I of the Inquiries Act to inquire into and report upon the existing facilities and the future need for health services for the people of Canada and the resources to provide such services, and to recommend such measures, consistent with the constitutional division of legislative powers in Canada, as the Commissioners believe will ensure that the best possible health care is available to all Canadians and, in particular, without restricting the generality of the foregoing, the said Commissioners shall inquire into and report upon:

"(a) The existing facilities and methods for providing personal health services including prevention, diagnosis, treatment and rehabilitation.

"(b) Methods of improving such existing health services.

(over)

"(c) The correlation of any new or improved program with existing services with a view to providing improved health services.

"(d) The present and future requirements of personnel to provide health services.

"(e) Methods of providing adequate personnel with the best possible training and qualifications for such services.

"(f) The present physical facilities and the future requirements for the provision of adequate health services.

"(g) The estimated cost of health services now being rendered to Canadians, with projected costs of any changes that may be recommended for the extension of existing programs or for any new programs suggested.

"(h) The methods of financing health care services as presently sponsored by management, labour, professional associations, insurance companies or in any other manner.

"(i) The methods of financing any new or extended programs which may be recommended.

"(j) The relationship of existing and any recommended health care programs with medical research and the means of encouraging a high rate of scientific development in the field of medicine in Canada.

"(k) The feasibility and desirability of priorities in the development of health care services.

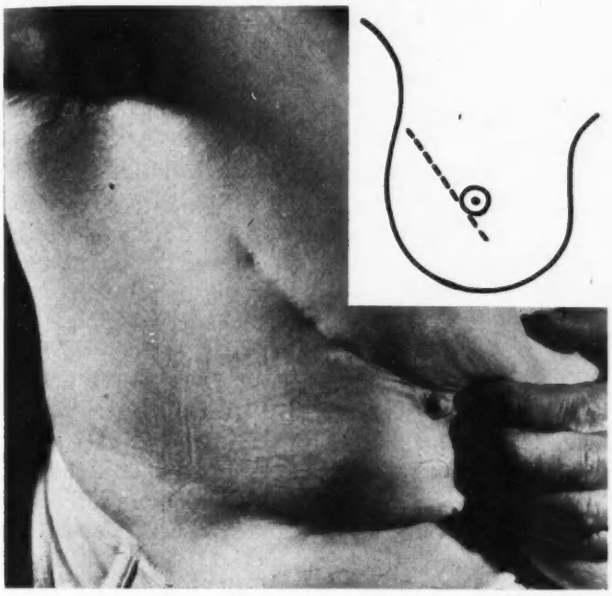
"(l) Such other matters as the Commissioners deem appropriate for the improvement of health services to all Canadians."

The Canadian Medical Association, the Divisions, the Affiliated Societies and all agencies concerned with the health of Canadians will now have the opportunity to put forth their best efforts in assisting the Commission to arrive at appropriate findings and recommendations.

This task has been designated as top priority in the work of the officials of The Association. To supervise, initiate and act in all matters relative to the work of the Royal Commission, an Executive Sub-Committee, consisting of Dr. G. E. Wodehouse, Dr. L. R. Rabson and Dr. J. A. McMillan, has been appointed and is already at work. L'Association des Médecins de Langue Française du Canada has appointed Dr. André Leduc to the Executive Sub-Committee and the President and the Chairman of the General Council are ex officio members.

In requesting the appointment of the Royal Commission on Health Services the C.M.A. has initiated a study which may have the most profound consequences on future developments in Canada. It now behooves us to contribute our knowledge and our experience to make the Royal Commission on Health Services an effective instrument in guiding public policy with the basic objective of providing for our fellow citizens health services of the highest quality, progressively improving in the light of developments in our art and science.

(Continued from page 34)



F. Hertzog

Fig. 4.—(Case 3) This photograph shows the marked furrowing of the breast.

cises at an arthritis clinic. One week prior to examination, on December 21, 1960, she had noticed "dimpling" over the lateral aspect of the right breast. There was no pain or bruising. On examination, with the right arm abducted and the nipple retracted medially and downward, there was a very marked, slightly irregular furrow extending from the anterior axillary fold to below the areola (Fig. 4). There was a tight band of fibrous consistency, 3 mm. in diameter, in this furrow. The remainder of the examination was non-contributory but for obvious osteoarthritis.

The patient was contacted by phone on February 1, 1961, and at that time she stated that there was "still a slight drawing, tight feeling in the breast but the cord is two-thirds gone".

DISCUSSION

Cord-like structures coursing in the subcutaneous tissues of the mammary region have been reported sporadically for many years. However, since Mondor's[1] report in 1939, this condition has often been referred to as Mondor's disease. Farrow[2] and Kaufman[3] have recorded excellent reviews of the literature on this subject, Farrow describing 43 cases and Kaufman 7 cases. Farrow stated that prior to 1955 there were 58 cases recorded in the literature.

The cord-like lesion is a thrombosed vein. It occurs in both males and females. One of the five patients seen by the author was a middle-aged man; the other four were women. Farrow reported the condition in one male and 42 females. The condition tends to occur during active adult life but has been reported in childhood and old age.

Trauma seems to play a definite role in some of these cases, as evidenced by the three cases reported in this article. Robinson[4] has reported similar observations. Surgical trauma, such as breast biopsy, has been followed by subcutaneous phlebitis. The lesion has also been associated with both local and generalized infection. However, in the majority of the reported cases the phlebitis occurred on an idiopathic basis.

The patient will usually notice some discomfort in the breast region and on palpation feels a tender cord. On inspection, particularly by aid of a mirror and with the arm raised, she will notice a puckering over the breast. The three patients reported in this article all noticed this indrawing of the skin of the breast and immediately thought that they had cancer.

The thrombosed vein occurs most commonly over the upper outer quadrant of the breast. This is the area most affected by forceful contraction of the pectoralis major muscle, as in the forceful sweeping of a curling game. The next commonest area to be involved is the lower inner quadrant of the breast, running down to the epigastrium. In many patients both areas are involved. Thrombosed veins have been reported less frequently in the other quadrants of the breast.

The treatment of this condition consists mainly in reassurance concerning the benign nature of the phlebitis, for by the time the patient reports to her doctor the pain and tenderness have usually subsided. However, if the patient is seen early, use of analgesic, support and local heat may be indicated. The fibrous cord usually disappears within two months but on rare occasions may persist for a year or more.

SUMMARY

Three patients presenting with subcutaneous phlebitis of the breast have been described, and this rather unusual condition has been briefly discussed. The main purpose of this report is to bring this disease entity to the attention of the medical profession and, by so doing, help to allay the ever increasing cancer phobias of our patients.

REFERENCES

1. MONDOR, H.: *Méd. Acad. chir.*, **65**: 1271, 1939.
2. FARROW, J. H.: *Surg. Gynec. & Obst.*, **101**: 63, 1955.
3. KAUFMAN, P. A.: *Ann. Surg.*, **144**: 847, 1956.
4. ROBINSON, R. H. O. B.: *Brit. J. Surg.*, **23**: 296, 1935.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

Modern western civilization shows two strong dispositions on the part of the people that have been long recognized and that must be accepted and arranged for by municipalities and by the state. One is the desire on the part of many to live in cities rather than in the country, and the other is the degeneration that inevitably obtains in the third and fourth generation of city dwellers. This degeneration is seen among the rich and even more among the poor. One need only walk through the poorer quarters of a large manufacturing city and see the poor, narrow-chested, ill-clad, unkempt, weak-faced people to appreciate the influence of their surroundings upon the fathers, the mothers, and their offspring. The children grow up with little education, are voluble, easily excited, and with little physical resistance to disease, or moral resistance to temptation.—Excerpt from the President's Address: 1911, G. E. Armstrong, M.D., *Canad. M. A. J.*, 1: 591, 1911.

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EVALUATION OF ANTISECRETORY AGENTS IN PEPTIC ULCER THERAPY

THE hazards and pitfalls that beset investigators engaged in studies to assess the therapeutic efficacy of pharmaceutical products have been the subject of much searching and justifiably critical comment of late. The torrent of new drugs that continues to flood the market, while rendering the problems of reliable, accurate assessment the more complex, makes it even more important that pharmaceutical and other therapeutic agents be subjected to properly designed, adequately controlled and critically evaluated objective studies to define their true value and limitations in practical clinical therapy. To emphasize this concept, this Journal has in the past year devoted a considerable number of pages to reports dealing with some of the more important features in the design of therapeutic evaluation studies and clinical trials.

A revealing picture of the problems encountered in such studies is illustrated in a recent issue of the *British Medical Journal* in three separate reports[1-3] concerning investigations of the value of a newly introduced gastric antisecretory agent, poldine methosulfate, in the treatment of peptic ulcer.

There is now good evidence that elimination of hydrochloric acid from the gastric juice facilitates the healing of duodenal ulcers, and that gastric hypersecretion is stimulated by parasympathetic activity. It appears rational, therefore, to attempt to inhibit the vagal mechanism by the administration of an anticholinergic drug with the objective of decreasing the acid output of gastric glands. The concomitant blockade of smooth muscle innervation and diminution of gastrointestinal motility should constitute an added therapeutic fringe benefit. The already large and still growing list of anticholinergic drugs that have been employed for this purpose suggests, however, that an ideal antisecretory agent has not yet been found. The longer this list grows, the more important it becomes to be able to reliably assess the results of experimental studies of the clinical effectiveness of these drugs to provide a sound basis for selection of the particular agent that comes closest to fulfilling the criteria of an ideal antisecretory substance.

Controlled therapeutic trials with duodenal ulcer patients are particularly difficult and time-consuming because of the nature of the technical study procedures involved and because of the characteristically remittent natural course of this disease. Many methods of measuring the antisecretory potency of anticholinergic drugs have been devised to date. All of these assess the suppressive action of the drug on gastric acid secretion under special conditions. Thus the effect may be evaluated following one meal, following histamine stimulation, in the state of insulin hypoglycemia, under basal or nocturnal conditions, or following a glucose test meal. Although all of these methods have a rational basis, it has not been established that any or all of them have unlimited physiological or clinical relevance. This is well illustrated, for example, by comparison of the results of the previously mentioned studies on the effectiveness of poldine methosulfate in reducing gastric acidity under strictly controlled experimental conditions, with the results of a controlled clinical trial of this agent in a series of patients with duodenal ulcer.

Poldine methosulfate is a drug with an atropine-like action that has been described as a selective inhibitor of gastric secretion. Its effect upon gastric acid secretion has been studied on patients with radiologically proved duodenal ulcer, both before and after injection of a large dose of histamine.[2] Following a control augmented-histamine test, the administration of poldine was begun and its dose was adjusted on an individual basis so that each patient received the maximum dose that he could tolerate without side effects. The drug was given in four equal doses spaced evenly throughout each 24-hour period and the use of antacids and a liberal diet was permitted throughout the study period. It was observed that adequate doses of poldine methosulfate reduced the spontaneous secretion of gastric acid by more than half, about three hours after the drug was administered, but after 11 hours its effect was minimal and inconstant. The effect of poldine on maximal histamine response was similar in degree and in time relationship to ingestion of the drug. Thus it was concluded that poldine methosulfate is effective in reducing gastric acid secretion when taken in oral doses that do not produce side effects.

The action of this drug was investigated in a second study[1] by the following procedures: (a) studies of its inhibiting effect on insulin-stimulated gastric secretion; (b) electromagnetic testing of gastric juice pH at two dosage levels (4 mg. six-hourly and 8 mg. six-hourly) during a 24-hour period, on a normal diet; and (c) a long-term,

double-blind clinical trial on outpatients with proved duodenal ulcer. In all cases partial inhibition of insulin-stimulated gastric secretion was observed, the inhibitory effect being statistically significant. At both dose-levels there was a significant increase in the number of gastric pH readings in the higher range but only a minority were in the pH range greater than 4.0 which is considered desirable if peptic activity is to be reduced to a minimum. In the clinical trial, it was reported that there was no evidence that poldine methosulfate significantly reduced the number of acute exacerbations or improved the eventual clinical status of patients so treated. As a result of these observations it was concluded that poldine, by virtue of its antisecretory activity, can be usefully employed for immediate relief of acute ulcer symptoms, but that its administration does not fundamentally alter the course of the disease.

To becloud the issue further, the results of a third study[3] led to the conclusions that poldine methosulfate, either in tolerated doses or in amounts large enough to produce intolerable side effects, did not significantly affect the acidity of gastric contents, nor did it exert any consistent therapeutic effect upon any stage in the course of duodenal ulcer. It was reported that poldine apparently augmented the effect of regular antacid by day but did not prolong that of a dose of alkali administered at bedtime. In a long-term clinical trial involving the administration of poldine and an identically appearing placebo, in randomized order to each patient in the series under study, both "treatments" gave similar results by all criteria employed in this investigation. Possibly the most significant observation in this study was the fact that acute exacerbations occurred with equal frequency whether the patient was receiving poldine or the placebo.

It is noteworthy that such conflicting results as those described in these three reports can arise even from well-designed and controlled investigations. Similar discrepancies have also been encountered in experimental and clinical studies of the effects of other drugs such as atropine, hexamethonium, methanthelinium and penthienate bromide on gastric acid secretion and of their therapeutic influence on patients with duodenal ulcer.

There are at least two possible reasons why poldine methosulfate and other anticholinergic drugs may decrease gastric secretion under certain conditions but do not reduce gastric acidity when patients take food. In the first place, food itself is a powerful natural stimulant to acid secretion and, secondly, the acidity of gastric contents depends not only upon the acid secreted but also upon the time since food was ingested, the nature and consistency of the food, its acid-buffering effect and the rate of gastric emptying. All of these factors must be considered in any interpretation of results obtained under experimental conditions. It has been suggested[3] that the gastric sampling technique, under conditions approximating as closely as possible those in which the drug is used clinically, offers a reliable experimental procedure for the evaluation of gastric antisecretory drugs before a controlled clinical trial is considered.

The importance of testing all such drugs under conditions simulating those of actual clinical practice, of course, cannot be overemphasized since these methods alone, in the final analysis, establish whether or not a pharmaceutical product is of practical therapeutic value.

REFERENCES

1. MELROSE, A. G. AND PINKERTON, I. W.: *Brit. M. J.*, 1: 1076, 1961.
2. SEIDELIN, R.: *Ibid.*, 1: 1079, 1961.
3. LENNARD-JONES, J. E.: *Ibid.*, 1: 1071, 1961.

EFFECTS OF SENSORY DEPRIVATION, ISOLATION AND CONFINEMENT

SOCIOPOLITICAL, military, scientific and engineering developments of the past two decades have introduced a bewildering array of physiological and psychological problems that centre upon such unaccustomed situations as those imposed by space flight, submarine warfare, imprisonment, enforced indoctrination (brainwashing), and life in isolated military service units. There is a growing tendency to assume that many of these problems may be solved, in part at least, by research studies on the effects of sensory deprivation under experimental conditions. The hazards of uncritical extrapolation of the results of such studies to real-life situations have recently been emphasized in a report by R. H. Walters and G. B. Henning of the Department of Psychology, University of Toronto (*Aerospace Med.*, 32: 431, 1961).

Most of the investigations on sensory deprivation that have been reported to date have also imposed periods of extreme social isolation which, of itself, may well have induced significant effects. In addition, the real-life conditions imposed by solitary travel in space may provide a number of novel sensory impressions while eliminating all social contact. In such situations, certain of the effects that have been attributed to sensory deprivation may actually be more closely related to fear of abandonment or of inability to cope with unknown emergencies singlehanded, than to any lack of sensory stimulation. In support of this observation it is noted that information obtained from subjects exposed to such conditions indicates that they did not consider their physical environment by any means monotonous. The problem with most laboratory studies of sensory deprivation is that they simultaneously manipulate the subject's physical and social environment without simulating any real-life situation.

Relevant studies of the effects of social isolation have involved at least some degree of sensory

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deprivation in that they entailed confinement of subjects to a single room, thereby removing those sensory experiences that are associated with seeing, touching or conversing with other individuals. Certain of these investigations have, however, concentrated on the effects of social isolation without restricting the sensory appreciation of vision, hearing or movement.

Walters and Henning also point out that many of the real-life situations to which the results of experimental sensory deprivation studies have been extrapolated, do not apply to single individuals alone, but affect small groups of men compelled to live together with few or no outside contacts, such as service personnel at isolated stations, aircrews and submarine crews. Some of the responses of such individuals can perhaps be better understood in terms of the social processes that typically occur within small groups. Social processes also constitute an important area for study of the phenomena associated with enforced indoctrination or brainwashing. In this situation, breakdown of social communication may occur even in the presence of other people, as was noted among American prisoners in the Korean combat who were exposed to procedures by their communist captors that were designed to create in each prisoner, fear and suspicion of his fellows that led eventually to his social isolation within the group.

Studies of isolated communities may throw additional light on the effects of prolonged social isolation but it must be borne in mind that persons habituated to such environments are likely to respond differently than those who are abruptly deprived of social and cultural contacts to which they are accustomed, and who are suddenly confronted by unaccustomed dangers.

Investigations to date indicate that there is a wide range of individual differences in response to stress situations associated with the hazards of war and of exploration of the unknown. Some of these differences may be related to the social conditioning effected by the child-training techniques of the families concerned, their culture, society and social class. Recent studies suggest that even the order of birth within the family may have a significant influence upon the degree to which an individual fears social isolation and therefore yields to pressures from other people.

In the present state of knowledge it would seem unwise to attempt any theoretic integration to explain, at one and the same time, current findings on the effects of sensory deprivation, the various conditions termed "social isolation", and reactions to living in small isolated groups. Such premature crystallization of theory could impede the progress of research in these areas. This progress can probably best be attained by meticulous integration of laboratory and field studies of the complex phenomena involved in these situations.

"PRESCRIBERS' JOURNAL"

VIRTUALLY since the beginning of the National Health Service in Great Britain the amount paid out on drugs has caused great agitation in many circles, and to the end of economical prescribing there exists a considerable official team to give the doctor advice and criticism.[1] In addition, the Ministry of Health has, for some years, been publishing a circular entitled *Prescribers' Notes* which offers detailed guidance on the costs of drugs in current use. Despite this, the final report[2] (1959) of the Hinchliffe Committee on Costs of Prescribing recommended that a new journal should be established "to distribute to general practitioners up-to-date information about new drugs and preparations and the results of clinical trials".

The first issue of such a journal, called the *Prescribers' Journal*, appeared in early April. It is issued free, every two months, by the Ministry of Health and the Department of Health for Scotland to all doctors in the Health Service and to medical students in their clinical years.

Though the journal was to be run "by the medical profession for the profession" and "independent of the pharmaceutical industry and of the Ministry of Health",[2] the Ministry of Health decided "it has not proved practicable to arrange for the journal to be produced in the way suggested by the Hinchliffe Committee".[3]

The journal sets out "to provide the doctor with early and reliable information about new pharmaceutical products". As an editorial[1] in the *British Medical Journal* comments dryly, "This is a tall order—even for a periodical launched under Government auspices at public expense. . . ."

The Hinchliffe Committee had felt that the profession could not reasonably rely on the manufacturers both to produce new drugs and to describe them in an entirely disinterested way and that the average doctor was unable to judge the validity of the claims made by the manufacturers' representatives. The journal was conceived to fill the need for independent guidance and to be based neither on the wish to sell a drug nor on the wish to reduce expenditures.

Whether such a journal can be "independent" in this sense is questionable; but, more to the point, whether the medical aim of good prescribing—rather than the political aim of economical prescribing—is achievable in this fashion is even more questionable. What really makes for good prescribing, as one enlightened writer[4] has said, "is sound undergraduate education in therapeutics and continued postgraduate reading and courses throughout a doctor's working life".

REFERENCES

1. Annotation: *Brit. M. J.*, 1: 1021, 1961.
2. Great Britain, Ministry of Health: Final report of the Committee on Cost of Prescribing in England and Wales, Her Majesty's Stationery Office, London, 1959.
3. Great Britain, Ministry of Health: E.C.L. 25/61.
4. Leading Article: *Brit. M. J.*, 1: 1285, 1959.

Letters to the Journal

SALVAGE OF MEDICAL JOURNALS

To the Editor:

I read with great interest the editorial "Salvage of Medical Journals for Distribution to Underdeveloped Countries" (*Canad. M. A. J.*, 84: 1205, 1961).

Personally I think it is a wonderful gesture and I think that our Ontario doctors may also like to do a similar thing.

I will certainly be glad to donate many journals for such a worthwhile cause.

NATHAN SHAUL, M.D., M.Sc.(Med.).
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EPIDERMOID CYST OF THE CECUM

To the Editor:

The paper "Epidermoid Cyst of the Cecum" (*Canad. M. A. J.*, 84: 1075, 1961) presents an account of an unusual abdominal tumour. The comments by the author relative to dermoids and to the rarity of the lesion which he reports, prompt me to mention a publication on a somewhat similar rare tumour.

In a paper, "Dermoid Cyst of the Cecum" (*Gastroenterology*, 31: 447, 1956), the author describes a cyst with a wall lined by thin stratified squamous epithelium, with single well-formed sebaceous glands in various portions of the wall. No hair follicles were found in any of numerous sections studied.

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THE POSITIVE SIGNS OF NEUROSIS

To the Editor:

Dr. T. F. Rose is to be commended for his courage in dealing with signs of neurotic behaviour which the medical student and the physician would not find in their textbooks of medicine (*Canad. M. A. J.*, 84: 1132, 1961). His description denotes large experience, keen spirit of observation, and a good sense of humour. I think of this presentation as being of value for the physician who might have noticed some or even all of these signs without having paid any particular attention to them unless he became annoyed by them. However, the statements found in this paper cannot be accepted entirely at their face value. For one thing, the signs described are by no means "the positive signs of neurosis". They are, at the most, signs of neurotic behaviour which may give the observing physician at a glance an indication of the personality type he will have to deal with. These signs, mannerisms, gestures and expressions have their meaning comparable, for example, to some conversion symptoms. Their meaning, however, cannot become clearly understood unless the physician has the training, experience, time and patience to establish a working patient-doctor relationship which will enable him to know his patient in every respect, and to get to understand his emotional and thinking processes as well as his body functions, his anxieties, and finally the cause, purpose and meaning of the symptoms he offers the doctor right from their first meeting onward.

I think a short comment on one of Dr. Rose's remarks is necessary for the sake of better mutual understanding. He writes: ". . . the prospective patient may mysteriously refuse to give any information at all, which simply is not done by people with honest complaints." Does this imply that neurotic complaints are not honest, that his complaints are tantamount to malingering? I think that this approach to the neurotic patient's complaints is dangerous, showing a high degree of negative counter-transference. It cannot possibly lead to a good working patient-doctor relationship in spite of many doctors' professional and material success.

I fully agree with Dr. Rose in that the neurotic patient should have the briefest relevant investigation for possible concomitant organic disease. On the other hand, the diagnosis of a neurotic condition must not be based on ruling out organic illness and on the observation of the patient's behaviour which can only supplement but never replace thorough psychiatric investigation.

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WHY THE SCARCITY OF MEDICAL STUDENTS?

To the Editor:

The presses of the nation have broadcast their universal lamentation at the paucity of medical student candidates. Their observations of the impending possible calamity appear to be an honest copy of those fears, as set forth in the excellent recent issue (*Canad. M. A. J.*, 84: 689, 1961) on medical education, its hopes, aims, facilities and futilities.

But as these recognized problems come up for analysis, one wonders, are they as perplexing as portrayed? Should the portrayers be as perplexed as they seem?

First, it may be agreed that this is not the responsibility of the medical schools and the teachers therein. Theirs is to educate when the candidate has appeared. By no reasoning should they be held accountable for non-appearance, or saddled with the responsibility of determining why.

No, this practical information and its correction must come from extra-academic sources. It must eventuate, primarily, from the practising physician and his philosophy in the modern world.

Doctors in general have a very clear perception of what has happened to the fascination of medicine. It is simply that the strenuous modern economy has overpowered the would-be Oslers.

It is wholeheartedly agreed that any disease is more amenable to cure if diagnosed correctly, and at an early phase of its occurrence. Thus, it is asked, at what stage does this virus of "not worth the effort" enter the potential medico's life?

This is considered to be the great puzzle. This is where there need be no puzzle at all. A student bright enough to negotiate grade XIII successfully is bright enough to seek the facts and assess them. This opportunity is frequently afforded at high-school sessions on career planning. It has been my pleasure to represent the profession of medicine at such sessions, a privilege that is becoming more arduous each year.

Contrary to some opinion, it is not the length of the medical course or its costly fees that are the clinching deterrent factors. The eager academic brain still regards the long educational period as a challenge, and the cost factor can be eased by the potential earnings of nearly five months' vacation. In this period, with some assistance at placement, the medical student may, in any of several types of work, net a thousand dollars or more. Last year, we were pleased to observe six students reach this plateau.

No, the first shocker to these eager ones is to confirm their suspicions that after seven years of university study they have no higher earning power than they have at that very moment—possibly less; that as interns in hospitals across Canada they may variously receive a recompense ranging from nothing to approximately $150 per month; that the most junior sweeper of the floors is held in higher financial esteem. Then there is the further deflater that after graduation, to practise in Canada, they are forced to intern in Canada. Here is a distasteful element of compulsion; in their eyes, an act of professional enslavement.

To try to convince them that this is their duty because of the expensive process of education, would challenge an evangelist.

They reason: Engineers, architects, dentists and the like are said to be in short supply and have received costly teaching, but have their elder statesmen handcuffed them in this fashion? Are they worth so little after their college course? Would the other professions encourage their members to work in near charity or under such limitations? These are the problems. What is the cure?

The cure is simple, almost prosaic. At the conclusion of the undergraduate days, conditions, particularly the economic conditions, must be made attractive; then there'll be no need to restrict their crossing of the border. They won't have to be threatened with non-licensing. They'll love to stay here. They will be induced, instead of compelled.

There is an advertisement which appears month after month in the *Canadian Medical Association Journal*, soliciting interns and residents. This recitation of facilities mentions everything, everything but money. No wonder that it has to be almost continuously present.

To help explain this sorry state is the legend that a good doctor on the way up has to be poor; that like the musician who came down from the attic he will be the better for being hungry. Further to this thought, says the staff man, "Sure, didn't I rate the same? What's good enough for me . . . . . ."

In the beginning of this hospital fraternity, the young medico shadowed his senior and it was believed that his reward came in the form of information from the elder's knowledge and experience. This is, in a measure, still true and worthy; but in those earlier days, he cavorted around like a guest, tied and untied the healer's horse, paid due worship and was responsible only to his teacher. Today's manifold duties and responsibilities bear no comparison to this faraway pleasant sojourn. At present, these workers on the way up are indispensable. Without them a hospital would be a quiet rest home.

But this change in status, save for some happy exceptions, has never been recognized by hospital staff men, as a body. To some, the junior medico has only one function: to look after his patients. Experience will be his reward. Try to evaluate a "one such" who thought these helpers didn't rate any vacation. Seven years at college but not enough to merit a change of pace! The only convincing factor was that other hospitals in the same city were awarding a vacation period of a week or two. Said the superintendent, "Why, Doctor, we wouldn't get any at all next year."

Strange (but not so strange, since they are business men) is it that administrators and hospital business staffs have no such narrow outlook. They are not to blame. It is indeed true that they generally lead in understanding and evaluation of the junior staff. Hospitals, by virtue of their position, are the middlemen in the deal. They are only too willing to take the advice of organized medicine and they always have. Particularly in this day when governments are competing to pick up the medical tabs, the reform of this situation would be financially minuscule. Now is the time to do it. Now is when acting will be rewarding, when drifting will be serious.

Since in any area one hospital can do no more nor less than any other, this correction must needs be accomplished on a national level. It will have to be directed by our Canadian Association. We must take a more active hand in this overdue emancipation. This is our honest duty.

How can the future look attractive if it be not so? It can be made that way. Unshackle these helpers. They are our successors. Let us forget the selfish narrowness of compulsion. Toss out the iniquitous regulation that limits their scope of activity; help recognize their worth and the schools will be full of candidates.

Greater than the bogy of possible state medicine in the minds of those at the high-school level are the features described in part above. How do I know? Grade XIII has just told me. Again!

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ALVEOLAR ECHINOCOCCOSIS

To the Editor:

To keep the record straight it should be noted that the case report on "Alveolar Echinococcosis" published in the *Canadian Medical Association Journal* (84: 1138, 1961) and a more detailed pathological and ecological report in the *American Journal of Clinical Pathology* (35: 160, 1961), with a case report, refer to the same case. The true incidence of the disease in this area is therefore only 50% of that reported to date!

M. M. SEREDA, M.D.
10603 Saskatchewan Drive,
Edmonton, Alta.

THE LONDON LETTER

Effective Prescribing

The exhortations to the general practitioner to standardize, rationalize and economize in prescribing for his Health Service patients continue. Two new publications in England deal with this problem; one will help the G.P. and the other will probably confuse him. The one which may prove helpful is the new *Prescribers' Journal*, which has appeared as a free issue to all general practitioners from the Ministry of Health and is intended to give up-to-date information about new drugs and preparations and the results of clinical trials. Those responsible are a very respectable collection of pharmacologists and clinicians, and the first number contains discussions of griseofulvin, topical corticosteroids and penicillins. The periodical will appear every two months and is of course paid for with public money. One wonders what sources of secret information on new products its sponsors will have that the editors of the independent medical journals have not already had, or whether the general practitioner will be more encouraged to read the new journal when he has already been presented in the older periodicals with articles, editorials and abstracts on griseofulvin and the other products discussed in the first number. One can only wait and see, but the problem is inescapable—either one publishes inaccurate or even misleading information on a new product *quickly* or one waits for a longer-term assessment and publishes late. No government or any other power can alter this perpetual dilemma of the medical editor.

The other event is the appearance of a new report on classification of drugs by the standing committee on classification of proprietary preparations, affectionately known as the Cohen Committee (not to be confused with any of the other Cohen Committees, such as the one on the medical curriculum!), in which the committee makes another endeavour to restrict prescribing of unnecessary preparations while leaving the doctor free to prescribe what he likes. This may sound confusing, but that is also the opinion of the editor of the *British Medical Journal*, who says that these endeavours are "becoming so intricate that the practising doctor may have some trouble in understanding the latest report". The purpose of the latest effort is to delineate a class of drugs which the doctor may prescribe if he thinks necessary but which may get him into trouble with his N.H.S. masters if they should decide to investigate his prescribing. In other words, the scared doctor won't prescribe the preparations in this new category S, which contains preparations whose active therapeutic constituents are identical with, or modifications of, those of standard preparations; or elegant variations; or certain mixtures. It is not easy to see what preparations fall into this class. For instance, it may be argued that some of the newer corticoids are merely modifications of the original cortisone, or that a slow-release barbiturate is in no way different from a simple tablet. As the *B. M. J.* says: "The rumour that merit awards are to be instituted for general practitioners who show a special mastery of this administrative framework is, however, hardly credible." Let's not be too sure of that; a government department is capable of anything.

Maternity Services Under Fire

Within the last few months, a good deal of sporadic discontent with the N.H.S. maternity services has been expressed in the press and on the radio. Most of the discontent is directed at the hospitals and not at the domiciliary midwifery system which still takes care of a fair though decreasing proportion of confinements. Out of a series of over 300 mothers who had had experience with both systems, 80% preferred home confinement, though a committee report published by the Ministry of Health in 1959 suggested that dissatisfaction with the maternity services was not widespread. This year a further short committee report has appeared on "human relations in obstetrics", and there does seem to be some suffering due to understaffing and a growing disparity between the patient's expectations and the organization and attitudes of maternity units. Patients are better educated and therefore expect more; they are more sophisticated and therefore more anxious. They want to know what is happening and they do not want to be left alone for long periods in labour. Meanwhile the hospitals are delivering 40% more babies than they were five years ago, and they are getting dangerously short of midwives. There is little prospect that overworked practitioners could carry more of the load; meanwhile potential students of midwifery are deterred from entering the ranks by the overwork. In London, the emergency service is often called into action because a woman has gone into labour and has failed to find a hospital bed beforehand. Last year over 1500 women were rushed into a hospital without previous booking, whereas a few years ago everybody was booked well ahead of term.

A recent article in *Lancet* (April 22) examines the problem all round. The writer finds a need for training of doctors and midwives in human relations, above all by the example of older personnel, and for more reasonable treatment of the woman admitted to the labour ward. Such minor details as the substitution of a suppository for an enema, and the issuing of a maternity gown which reaches somewhat lower than the umbilicus, would help, and the presence of the husband in the earlier stages could be invaluable, although recent correspondence in the *British Medical Journal* revealed great disagreement about this. The most entertaining letter was from an Irish doctor who stoutly maintained that a husband's place on such occasions was down at the "local" (a word for which there is no Canadian equivalent in the present state of the liquor laws)!

Antidiabetic Drugs and Multiple Sclerosis

A recent paper in *Lancet* (April 29, 1961) suggests that yet another promising lead in the therapy of multiple sclerosis is about to fade out. It was suggested by Sawyer last year that a trial of tolbutamide in a dosage of 0.5-1.5 g. daily in a small series of patients had produced definite improvement, and that carbohydrate restriction in diet led also to amelioration while high-carbohydrate diet did the reverse. However, Foster *et al.* of Newcastle-upon-Tyne, who recently conducted a controlled trial on 40 patients under epidemiological study in their area, found no evidence to

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confirm these results. They had 20 patients on tolbutamide and 20 on placebos and carried out a three-month trial, with full examination at the start, after one month and after three months. They assessed patients on a numerical scoring system. There was, of course, a wide scatter on individual scores, and the assessment by no means coincided with the patient's own view on changes in his condition. However, on the average the placebo seemed to do more for the patient than the tolbutamide.

S. S. B. GILDER

MEDICAL FILMS

THE FILMS listed below are held in the National Medical and Biological Film Library and are distributed by the Canadian Film Institute, 1762 Carling Avenue, Ottawa 3, Ont. The evaluations have been prepared by Canadian specialists in the subjects of the films, under the Medical Committee of the Scientific Division of the Institute, which is headed by Dr. G. H. Ettinger.

A Clinic on Recognition and Management of Respiratory Acidosis—1958; 16 mm.; sound; colour; 34 minutes.

Film record of a TV presentation and sponsored by Smith, Kline and French Laboratories. Panel members are from the University of Southern California School of Medicine.

Description.—The film opens with the caution that oxygen improperly used can be deleterious. A hypothetical case is presented of a dyspneic patient failing to improve on oxygen, and the postmortem diagnosis of respiratory acidosis is made on clinical history. The condition is pointed out as a common but largely unrecognized syndrome secondary to a variety of situations producing hypoventilation. The pathological physiology is explained and then the use of positive pressure breathing equipment is shown following a short sequence on treatment of the underlying pulmonary process. Mention is made of anesthesia in relation to respiratory acidosis. The technique of arterial sampling and the use of a pH meter are demonstrated. The film ends with a detailed case history presentation.

Appraisal (1960).—The clinical features of respiratory acidosis are well presented and though probably purposely overdrawn the problem is one that is not sufficiently appreciated. The main emphasis is on improving recognition of the condition—though the physiological background is very clearly discussed. Recommended for medical specialists, general practitioners, medical students in clinical years. Suitable for nurses; unsuitable for others.

Availability.—National Medical and Biological Film Library ($8.00). For purchase apply to Smith Kline and French Laboratories, Montreal, P.Q.

Prevention and Control of Staphylococcal Infections—1960; sound; black and white; 12 minutes.

Produced by the Communicable Disease Center for United States Department of Health Education.

Description.—The film opens with a statement of concern about the increase of antibiotic-resistant staphylococcal infections. The ways in which a new hospital patient may become infected are examined. The recommendation of the American Hospital Association is that an Infection Committee should be set up. Various ways of avoiding the spread of infection and methods of controlling the occurrence of operating room infections are dealt with. Housekeeping practices and obstetrical and nursery technique also receive some attention.

Appraisal Panel Comments (1961).—The film highlights the problem and suggests methods of prevention and control. It is up to date, with a commentary that is accurate, interesting and to the point; though the pace is somewhat pedestrian the problem is well presented and the suggestions are generally good. There are a few obvious poor practices seen which might stimulate discussion with which the film closes. Recommended for medical students in clinical years, nurses, technicians, and medical auxiliaries. Suitable for general practitioners, medical specialists. Unsuitable for non-medical audiences.

Availability.—National Medical and Biological Film Library ($3.00). For purchase apply to United World Films, 1445 Park Avenue, New York, N.Y.

Phase Microscopy of Normal Living Blood Cells—sound; colour and black and white; 26 minutes.

Produced by the University of Washington School of Medicine. Technical advisers: Richard J. Blaundau, Quinn B. DeMarsh, Paul H. Ralph.

Description.—This film presents the various cellular elements of blood in a series of contrasts between that seen in a fixed Wright's stained smear and a preparation using phase-contrast microscopy. The identifying features of the various types of leukocytes are pointed out in the stained preparation, then the actively motile counterpart is observed. Additional characteristics are pointed out. The platelet is shown in various stages of vesiculation. Red cells are seen demonstrating such features as stickiness, flickering and plasticity.

Appraisal (1960).—The advantages of phase microscopy in studying morphology and behaviour of living blood cells are clearly shown. The film is up-to-date, technically excellent, accurate and interesting. Mainly instructional, partly training. Recommended for medical students in pre-clinical years, medical technologists. Suitable for specialists, medical students in clinical years, nurses, general scientific audiences, general practitioners.

Availability.—National Medical and Biological Film Library ($6.00). For purchase apply to: Film Center, University of Washington, Seattle 5, Wash.

Aneurysms of Abdominal Aorta—1956; sound; colour; 28 minutes

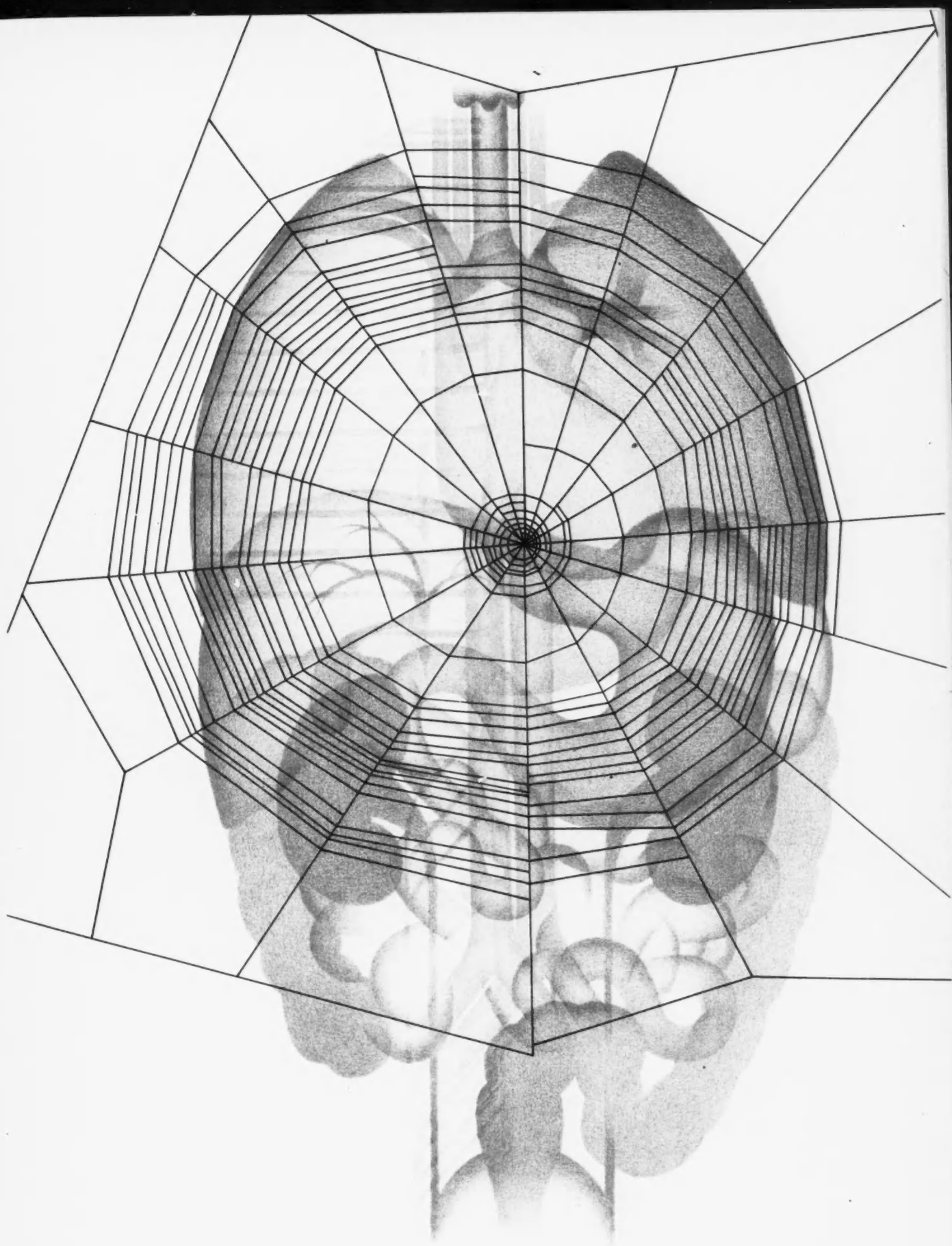
Produced by the Department of Surgery, Baylor University College of Medicine. Technical advisers: Michael E. De Bakey, Denton A. Cooley and E. Stanley Crawford.

Description.—This report-type film gives an analysis of 500 cases of aneurysms of the abdominal aorta. The use of four replacement materials is illustrated and their advantages and disadvantages are discussed.

The film begins with a few comments on diagnosis, then launches into an actual case in which the main points in technique are given. In successive cases a freeze-dried aortic homograft, a Sanger nylon-orlon tube, the Edwards-Tapp braided nylon tube and the crimped knitted dacron prosthesis developed by the producers of the film are shown being used for replacement. The final sequences give a breakdown of results.

Appraisal (1959).—This is a well-made, concise report of the experience of this group in their first 500 cases. It presents the current situation clearly and accurately. It is up-to-date except for lack of mention of teflon. Recommended for general practitioners. Suitable for specialists in the subject, medical students in clinical years.

Availability.—National Medical and Biological Film Library ($6.00). For purchase apply to: Photographic Department, Methodist Hospital, Houston, Texas.



Tofranil® Geigy

In General Practice . . .

Tofrānil in General Practice

Tofrānil for the "problem" patient in practice

In its most common form, depression is seen, not as a well defined classic syndrome, but as an emotional state accompanied by vague physical complaints which may either simulate or complicate somatic illness. This "problem" patient may have a hidden depression, Watts. [1] Tofrānil can relieve the emotional and physical symptoms due to depression.

Lassitude, especially in the morning
Loss of interest
Disturbed sleep

besides such physical symptoms as

Loss of weight
Vague digestive disorders

for which no organic basis can be found, are the manifestations of depression.

Tofrānil relieves the symptoms of depression. Tofrānil is the practical and effective therapy for the office treatment of depression.

1. Watts, C.A.H., B.M.J., January 5, 1957

Dosage
All recommended daily amounts should be given in divided doses.

Tablets of 25 mg
Regular daily dosage 3-6 tablets
Maintenance therapy 1-3 tablets

The daily dosage can be slowly increased until the onset of considerable improvement and then reduced to the maintenance dosage. Tofrānil should be withdrawn gradually.

Tablets of 10 mg (for elderly patients)
Regular daily dosage:
Initial dosage 1-2 tablets
Optimal dosage 3-5 tablets

Initial dosage to be slowly increased to the optimal dosage. Optimal dosage to be maintained to the end of therapy. Gradual withdrawal.

Ampoules of 25 mg
(For initial or intermittent therapy in cases resistant to oral therapy)

Dosage as for tablets of 25 mg.

Side Effects
Tofrānil produces very few serious side effects. However, dryness of the mouth and sweating are frequent symptoms noted and provide valuable evidence that the drug is being taken by the patient. These symptoms can be controlled by lowering the dose.

Tofrānil should be used cautiously in cases of severe arteriosclerosis or heart disease. Tofrānil should not be combined with drugs the main action of which is to inhibit monoamine oxidase.

Availability
Tofrānil brand of Imipramine Hydrochloride, sugar-coated, coral-coloured tablets of 25 mg (round) and 10 mg (triangular) and as ampoules for intramuscular administration only. Each 2 cc. ampoule contains Tofrānil 25 mg.

Geigy Pharmaceuticals
Division of Geigy (Canada) Limited
2626 Bates Road

MEDICAL NEWS IN BRIEF

DIAGNOSIS OF LIVER DISEASE BY RADIOISOTOPE SCANNING

An automatic scanning technique was used to investigate 150 patients with suspected disease in the right upper quadrant. Wagner, McAfee Jr. and Mozley (*A.M.A. Arch. Int. Med.*, 107: 324, 1961) studied the spatial distribution of radioactive colloidal gold, taken up by hepatic reticuloendothelial cells, and of radioactive rose bengal, a dye that concentrates in hepatic parenchymal cells. Accurate localization of the liver was obtained by superimposing the photoscan over an abdominal roentgenogram made simultaneously. The borders of the liver were clearly demarcated and the radioactivity was uniformly distributed within the liver in normal persons. In patients with subphrenic abscesses or congenital maldevelopment, the malpositions of the liver could easily be seen. In patients with amebic and pyogenic intrahepatic abscesses, cavernous hemangiomas, ecchinococcus cysts, arteriovenous fistulae, and both primary and metastatic intrahepatic tumours, localized decreases in radioactivity were observed. Multiple metastases were evidenced by multiple areas of decreased radioactivity. Diffuse decrease in radioactivity, usually in association with enlargement of the total photoscan area, occurred in biliary, cardiac and Laennec's cirrhosis. Complete biliary obstruction was differentiated from parenchymal disease by the demonstration of rose bengal dye in the intestinal tract outside the hepatic photoscan, in the latter type of disease. Patients with infectious hepatitis, unless it was extremely severe, showed little difference from normal persons.

Photoscans were most helpful in the differential diagnosis of right upper quadrant pain, indicating whether the patient had a subphrenic abscess or a space-occupying intrahepatic lesion; in the differential diagnosis of abdominal masses; and in enabling an accurate follow-up of therapy in patients with intrahepatic abscesses. In many patients, major surgery was avoided when the hepatic photoscan revealed space-occupying lesions that were biopsied by needle aspiration.

ANTICOAGULANT THERAPY IN INTERMITTENT CEREBROVASCULAR INSUFFICIENCY

When reporting the results of anticoagulant therapy for cerebrovascular disease, it is always important to indicate the type of patient treated. The patients selected by Siekert, Millikan and Whisnant (*J. A. M. A.*, 176: 19, 1961) for anticoagulant therapy were felt to be at the stage characterized by recurrent transient episodes of focal neurologic dysfunction owing to a temporarily inadequate supply of blood to a portion of the brain. Such patients have attacks which are brief, vary in frequency and severity, and occur over a varying period of months or years. Between attacks the patient is normal. The duration of the attack only rarely exceeds one hour and usually is from 15 to 30 minutes. Although the attacks may occur as infrequently as once a year, they occur more frequently than once a month in the large majority of these patients. It is presumed that the ischemia is of such a short duration or such a minimal degree, or both of these, that cerebral infarction does not occur, or, if it does occur, that the involved region is of no apparent clinical significance. Thus, these patients are to be distinguished from those who have recurrent cerebral infarction, each one of which leaves a permanent residual neurologic defect.

Two hundred and thirty patients with such intermittent focal cerebrovascular insufficiency were followed up for periods varying from one to more than five years. A comparison was made of the occurrence of cerebral infarction in those who received anticoagulant therapy and in those who did not receive such treatment. Of 115 patients treated continuously, 4 had a cerebral infarction. Of 40 patients who did not receive this treatment, 16 (40%) had a cerebral infarction. Of 75 patients treated for a limited period (months), 24 patients (32%) had a cerebral infarction months or years after discontinuance of anticoagulant therapy. The occurrence of intracerebral hemorrhage was the same in treated and untreated patients. It is concluded that this therapy is associated with a reduction in cerebral infarction in this particular category of cerebrovascular disease.

TRANSIENT AND INTERMITTENT SYSTOLIC MURMURS IN NEWBORN INFANTS

A pediatrician is often called upon to assess the significance of a systolic cardiac murmur in a newborn infant. When the murmur is associated with cardiac failure, cardiac enlargement, or central cyanosis, the diagnosis of congenital heart disease is evident. More often these are absent and the diagnosis is established only after continued observation, when either the murmur disappears or signs of congenital heart disease become manifest.

Benson, Bonham-Carter and Smellie (*Lancet*, 1: 627, 1961) report a follow-up study of newborn infants with systolic murmurs. One hundred and eleven of 11,855 newborn infants (0.94%) had systolic murmurs. Thirty-nine per cent of these had congenital heart disease. At follow-up, 14% had persistent murmurs which were probably innocent, and 48% had lost their murmurs. Systolic murmurs due to congenital heart disease were found more often than innocent transient murmurs in premature infants and in those in whom other malformations were present. Innocent transient systolic murmurs were found 1.7 times more frequently in girls than in boys.

Analysis of other perinatal factors did not show any relation to the significance of systolic murmurs. Over a quarter of the infants with congenital heart disease, surviving at the time of the follow-up, had intermittent murmurs during their first few months or years of life. Infants with systolic murmurs should be kept under observation for a number of years, because even the disappearance of the murmur does not exclude congenital heart disease.

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NOISY PNEUMOTHORAX

Hamman's sign (crunching, crackling or clicking sounds near the cardiac apex) may be heard in traumatic or severe spontaneous mediastinal emphysema, but shallow left pneumothorax is a much more frequent cause. Hamman's sounds associated with left chest pain are often thought to indicate serious heart disease. In a series of 24 cases of noisy pneumothorax reported by Semple and Lancaster (*Brit. M. J.*, 1: 1342, 1961) the following conditions were initially suspected: benign and traumatic pericarditis, coronary thrombosis with pericarditis, pneumopericardium, and ruptured heart valve. Other authors have mentioned dissecting aneurysm, pulmonary embolism, mediastinitis, pleurisy, intercostal neuralgia, muscle strain and Bornholm illness in the differential diagnosis.

Noisy pneumothorax is a benign condition, usually occurring in young healthy males, and is invariably left-sided. The mechanism of production of the sounds is related to a localized collection of air in the pleura that is compressed and moved on the medial aspect of the left lung by the forcible action of the ventricles. In the past the condition has often been reported as "benign spontaneous mediastinal emphysema", but there is considerable room for doubt about this diagnosis as a clinical entity. Shallow spontaneous pneumothorax presumably occurs as often on the right side, but it is rarely recognized because of the absence of Hamman's sign and lack of proximity of the pain to the precordium. In a healthy patient with sudden chest pain this diagnosis cannot be excluded without an x-ray film taken in full expiration.

GROWTH OF GENEVA CHILDREN

Comparing children born in the last century with those of the present, a difference of several centimetres in height and several kilograms in weight in favour of present-day children is observed. It is remarkable that this increase has been continuing even in the last 10-20 years and it is erroneous to utilize height-and-weight tables for the children of our age which were prepared 20 or more years ago.

A question posed by R. M. du Pan (*Schweiz. med. Wchnschr.*, 91: 224, 1961) is whether this increase in growth observed over the last century is going to continue. His analysis of the increase in height of children in Geneva during the last ten years, compared with those of the preceding years, shows that the average height of the children of Geneva continues to rise. This ascending line does not seem to change greatly, though no apparent change in living conditions has taken place in recent years. It is not likely that the children of Geneva aged seven were receiving poorer nutrition in 1950 than they are receiving in 1960, and yet the seven-year-olds of 1960 measure 3 cm. more than those of 1950. Is it possible that a psychological factor is involved?

According to the author, the reason for the continued increase in height of the children of Geneva (and, for that matter, of children in many other countries) is not known. Several factors are probably of importance, such as ethnic changes in the population, increased urbanization, social progress, economic progress, and improved hygiene and dietetics. It is impossible to state definitely which of these factors is paramount.

(Continued on advertising page 24)

THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

Members of the Canadian Medical Association will be interested in the progress being made by The Royal College of Physicians and Surgeons of Canada towards the goal of a single standard of training and examination for specialists who now aspire to either Certification or Fellowship. The statement of policy reproduced hereunder is timely in view of the consultation held with the C.M.A. in April 1960.

STATEMENT OF COUNCIL POLICY IN RELATION TO THE FUTURE OF THE CERTIFICATION PROGRAM

1. A single high standard of specialty qualification in Canada is a desirable long-term objective. However, Council recognizes that there is a continuing need for the Certification examination in some specialties and that this need may well obtain for many years to come. Council will continue to encourage improvements and extension of training programs in these specialties in the belief that ultimately a single standard will be practical in these specialties as well.

2. The Credentials Committee has been directed to re-examine the regulations regarding training in each specialty. Specialty Committees of the College and National Specialty Societies have been invited to submit their views.

Where wide agreement exists in individual specialties, the Credentials Committee has recommended changes in the regulations which would establish identical plans of training to qualify candidates for either Fellowship or Certification examinations. Council has approved such changes in the following specialties:

General Medicine; Pathology; Physical Medicine and Rehabilitation; General Surgery; Obstetrics and Gynecology; Otolaryngology; Psychiatry.

3. In a few specialties where careful studies and widespread agreement indicated that the need for the Certification examination no longer exists, the Credentials Committee has recommended that the sole route to Certification be by the Fellowship examination. Council has approved such recommendations in the case of the following specialties:

Specialty	*Year Certification Examination will be discontinued*
Neurosurgery	1962
Neurology	1962
Orthopedic Surgery	1964

4. Council does not propose to alter at this time the present status of Fellows and Certificated Specialists. However, Council is encouraging active participation of Certificants in the expanding educational program of the College. To this end annual regional meetings have been arranged. Certificated Specialists are invited to attend and participate in these meetings.

January 1961

INFORMATION FOR CANADIAN DOCTORS ON

FINANCIAL ASSISTANCE AVAILABLE FOR GRADUATE OR POSTGRADUATE MEDICAL STUDY

in

CANADA - UNITED STATES - EUROPE

(PART 7*)

Through its Journal, The Canadian Medical Association is pleased to provide up-to-date information on financial assistance that is available to facilitate the graduate and/or postgraduate medical education of Canadian doctors. Owing to space limitations, we are not in a position to publish the complete list of medical award classifications at this time. Please refer to other issues of the Journal, if the subject in which you are interested is not listed herein.

Unless otherwise indicated, the value of the awards will be quoted in the currency of the country mentioned. As entry regulations into a foreign country vary, it is recommended that the applicant for postgraduate study first investigate all details through the Embassies of the foreign countries concerned. Applicants should satisfy themselves whether medical registration in the jurisdiction of the award is or is not a requirement to hold the postgraduate post in the country selected.

In so far as entry into the United States is concerned, simply communicate with the U.S. consular office nearest your place of residence. These offices are located in the following cities: St. John's, Newfoundland; Halifax, Nova Scotia; Saint John, New Brunswick; Quebec, Quebec; Montreal, Quebec; Ottawa, Ontario; Toronto, Ontario; Windsor, Ontario; Winnipeg, Manitoba; Calgary, Alberta; Edmonton, Alberta; and Vancouver, British Columbia.

It is understood that a Canadian citizen entering the United Kingdom must have a valid passport but that no visa is necessary. Application forms for passports can be obtained at any large Canadian Post Office and should be completed and sent to the Chief Passport Officer, Ottawa, Ontario.

Name of Award	Field of Study	Where Tenable	Value	Number Available	Duration	Conditions	Apply to
PATHOLOGY AND IMMUNOLOGY — UNITED STATES							
Postdoctoral Research Fellowship: Scripps Clinic and Research Foundation	Pathology and immunology	Scripps Clinic and Research Foundation, La Jolla, Calif.	$4500 to $5500 per annum, plus $1500 per annum for travel and laboratory expenses	Four	Three years	None	Dr. Frank J. Dixon, Director, Division of Experimental Pathology, Scripps Clinic and Research Foundation, La Jolla, Calif.
Senior Research Fellowship: Scripps Clinic and Research Foundation	Pathology and immunology	Scripps Clinic and Research Foundation, La Jolla, Calif.	Individualized	Four	One year (may be renewed)	None	Dr. Frank J. Dixon Director, Division of Experimental Pathology, Scripps Clinic and Research Foundation, La Jolla, Calif.
PHARMACOLOGY — UNITED KINGDOM							
Manchester University: Benger Research Fellowship	Pharmacology	Manchester University	£600 per annum	One	One to two years	Open to graduates in medicine or science of any approved university and to other suitably qualified candidates	The Registrar, University of Manchester, Oxford Road, Manchester, England, by July 1
PHYSICAL MEDICINE AND REHABILITATION — UNITED STATES							
New York University Medical Center: Fellowships in Physical Medicine and Rehabilitation		New York University Medical Center	$3400 to $3700 per annum, depending on background and training of applicant	Unspecified	One year (renewable to three)	Preference given to physicians who are engaged in or will return to teaching or other public service careers rather than private practitioners	The Director, International Training Program, Institute of Physical Medicine and Rehabilitation, 400 East 34th St., New York 16, N.Y.
PHYSIOLOGY — CANADA							
The Poulenc Fellowship	Applied physiology with emphasis on anesthesiology	University of British Columbia	$500	One	One year	Award made on recommendation of Faculty of Medicine	The Dean, Faculty of Medicine, University of British Columbia, Vancouver 8, B.C.
PHYSIOLOGY — UNITED KINGDOM							
Musgrave Research Studentships	Physiology	Queen's University, Belfast	£325 per annum	Two, each year	One year (renewable)	Available to British subjects, graduates of at least one year's standing in a university of the British Commonwealth	The Secretary, Queen's University, Belfast, Northern Ireland, by June 1

*See also page 1038, May 6; page 1092, May 13; page 1148, May 20; page 1214, May 27; page 1397, June 17; page 1457, June 24.

Name of Award	Field of Study	Where Tenable	Value	Number Available	Duration	Conditions	Apply to
PHYSIOLOGY — UNITED KINGDOM							
London University (King's College): Berridge Studentships	Physiology	King's College Hospital Medical School	£100 per annum	Unspecified	Two years	Candidates may be graduates of any university; must give references to previous training and capacity for research	Assistant Secretary, King's College Hospital Medical School, Strand, London, W.C.2, England
Manchester University: Platt Scholarship	Research in physiology	Normally at Manchester University	£90 per annum	One (next offer 1961)	One year (renewable for second and possibly third)	Open to candidates between 18 and 25 on January 1 of year of award without further restrictions	The Registrar, University of Manchester, Oxford Road, Manchester England, before July 1
Manchester University: Sybil Mary Pilkington Fellowship	Research into diseases of the blood with particular reference to the causation, treatment and cure of leukemia	Normally at Manchester University	£700 per annum	One, offered when funds permit (next offer 1961)	One year (renewable)	Open to persons who have obtained a medical qualification registrable in the U.K., the Dominions, or any other country	The Registrar, University of Manchester, Oxford Road, Manchester England, by June 1
PHYSIOLOGY — UNITED STATES							
Hitchcock Foundation Research Fellowship	Research in cardiopulmonary physiology	Hanover, N.H.	$6000	One	One year	Open to candidates with adequate background; Canadians eligible	Executive Director The Hitchcock Foundation, Hanover, New Hampshire
PHYSIOLOGY AND PHARMACOLOGY — UNRESTRICTED							
Locke Research Fellowship	Experimental physiology and pharmacology	Any approved place	£1650 to £2050 per annum	One-two	Two to five years	Open to graduates; offered about every 2-5 years	Assistant Secretary, The Royal Society Burlington House, London, W.1, England
POLIOMYELITIS — UNITED STATES							
University of Minnesota Kenny Institute Pediatric Fellowship	Poliomyelitis	University of Minnesota	$2052 plus tuition and fees	Unspecified	One year (renewable)	Open to graduates who have completed one year pediatric internship	The Dean, Graduate School, 316 Johnston Hall, University of Minnesota, Minneapolis, Minn., by February 15
PREVENTIVE MEDICINE — CANADA							
University of Toronto: Hastings Memorial Fellowship	Original investigation in preventive medicine	University of Toronto	$1500	One, every three years (beginning 1946)	One year	Holder must engage in study under direction of the Head, Department of Public Health; nominations made by Head of that department	Professor of Public Health, School of Hygiene, University of Toronto, Toronto 5, Ont.
PUBLIC HEALTH — UNITED KINGDOM							
Manchester University: Dr. Robert Angus Smith Scholarship	Research in sanitary science	Manchester University	£150 per annum	One (biennially)	One year (renewable)	None given	The Registrar, University of Manchester, Oxford Road, Manchester, England, by July 1
Manchester University: Sheridan Delpine Research Fellowship	Preventive medicine	Manchester University	£300 per annum	One; due notice given of offer	One year (renewable)	Open to graduates in medicine of any approved university, or to medical practitioners with approved registrable qualifications	The Registrar, University of Manchester, Oxford Road, Manchester, England, by July 1
PUBLIC HEALTH — UNRESTRICTED							
World Health Organization Fellowship	Public health and preventive medicine; control of communicable diseases, medical sciences and education	Unrestricted	About $160 to $330 per month plus allowance for tuition fees, books and travel	About one thousand N.B.: On a worldwide basis; one or two per year awarded to Canada	Usually 6 to 12 months	Fellowships are available to Member States and Associate Members of WHO and to Trust and other Territories for whose international relations WHO Member States are responsible, and which are administered by international authorities established by the U.N. Fellowships are intended to assist in the strengthening of health services and thereby to raise the general level of health. They are designed to provide opportunities for training which are not available in the countries of the candidates for Fellowships and to promote the exchange of scientific knowledge and techniques in public health and medicine in general.	Health Department of candidate's own government

Name of Award	Field of Study	Where Tenable	Value	Number Available	Duration	Conditions	Apply to
PUBLIC HEALTH — UNRESTRICTED						A Fellowship should normally be regarded as an integral and essential part of a project or program planned by a government either independently or jointly with the organization. Fellowships are, in general, open to medical and other professional and technical personnel who are, or who will be, engaged in medical health work under the health services of the country	
RADIOLOGICAL RESEARCH							
James Picker Foundation Fellowships	Radiological research	Canada	Depending on qualifications and experience	Variable	One year	Available to nationals of all countries wishing to obtain training in radiological research in Canada. Candidates must be graduates of an approved medical school and not over 35 years of age. Candidates must arrange for suitable laboratory accommodation and supervision for duration of their fellowships	Canadian Selection Committee, James Picker Foundation, Medical Research Council, National Research Building, Ottawa 2, Ont., by January 15
RHEUMATOLOGY — UNITED KINGDOM							
Empire Rheumatism Council: Travelling Fellowship	Research in some aspect of the rheumatic diseases	Unspecified in United Kingdom	Salary according to qualifications and experience	Vacancies advertised as they occur	Up to one year	Open to persons with medical or scientific qualifications to prosecute the research planned	The Empire Rheumatism Council, 8 Charing Cross Rd., London, W.C.2, England
RHEUMATOLOGY — UNRESTRICTED							
Helen Hay Whitney Foundation Research Fellowships	Clinical and non-clinical investigation dealing with connective tissue and its diseases	Unrestricted, subject to Foundation approval	$6000 per annum plus $500 for each dependent, plus $1000 per annum to the laboratory towards the expenses of the Fellow's research	12-15 per annum (three years, subject to annual review)		Candidates, men or women up to age 35, must hold M.D. or Ph.D. or their equivalent, planning a career in biological or medical research. Candidate must have a commitment for adequate facilities and research expenses other than salary	Executive Secretary, The Helen Hay Whitney Foundation, 525 East 68th Street, New York 21, N.Y., by August 15
Helen Hay Whitney Foundation Established Investigatorship	Clinical and non-clinical investigation dealing with connective tissue and its diseases	Unrestricted, subject to Foundation approval	$8000 per annum, plus $500 inc. per annum plus $500 each dependent, plus 5% towards institution retirement, plus $1000 expenses	One-two per annum	Five years	Preference given to former H.H.W.F. fellows	Executive Secretary, The Helen Hay Whitney Foundation, 525 East 68th Street, New York 21, N.Y., by August 15
SURGERY — CANADA							
Surgical Research Fellowship	Surgical animal experimentation	University of Saskatchewan Department of Surgery Animal Laboratory	$330 per month	Unspecified	One year (renewable)	Not given	Dr. E. M. Nanson, Professor of Surgery, Department of Surgery, University of Saskatchewan, Saskatoon, Sask.
University of Toronto: William Edward Gallie Trust Fund	Postgraduate study in surgery	University of Toronto	Income from $25,000	Unspecified	Unspecified	Fellowships or grants from this fund made on recommendation of Head of Department of Surgery	Professor of Surgery, Faculty of Medicine, University of Toronto, Toronto 5, Ont.
University of Toronto: Workmen's Compensation Board of Ontario Fellowship	Traumatic surgery	One or more teaching hospitals in the University of Toronto	$6000	One	One or more years	Open to graduates in medicine and awarded on recommendation of the Professor of Surgery and the Chief of Orthopedic Surgery	Professor of Surgery, Faculty of Medicine, University of Toronto, Toronto 5, Ont.
SURGERY — UNITED KINGDOM							
Royal College of Physicians of London: Sweatfeild Scholarship	Research in medicine or surgery	At an approved institution	Unspecified	One	One to three years	Open to qualified applicants of any nationality	The Assistant Registrar, Royal College of Physicians of London, Pall Mall, London, S.W.1, England

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Name of Award	Field of Study	Where Tenable	Value	Number Available	Duration	Conditions	Apply to
SURGERY — UNITED KINGDOM							
Barling Scholarship	Postgraduate work in surgery	Birmingham University	Assessed to meet individual requirements	Unspecified	Unspecified	Open to graduates of any university recognized by the Faculty; priority to graduates of the Birmingham University Medical School	The Dean, Faculty of Medicine, Birmingham University, Birmingham, England
Smith & Nephew Associated Companies Limited	Surgery	United Kingdom	£1200, including living expenses in U.K., tuition fees if any, and text books	Six	One year (renewable in exceptional cases)	Open to candidates of either sex, between 25 and 35 years old, whose medical qualification is registrable in U.K. Candidate must have two years' general clinical experience; must have held residential hospital appointments in general medicine and surgery. Must return to country of origin within 12 months of completion of Fellowship	The Secretary, Smith & Nephew Associated Companies Limited, 2 Temple Place, Victoria Embankment, London, W.C.2, before July 31, 1961
SURGERY — UNITED STATES							
Western Reserve University (School of Medicine): (a) Crile Fellowship (b) Bunts, Crile and Lower Fellowship	Surgery	Western Reserve University	(a) $2100 per annum; (b) $2200 per annum	One each of (a) and (b)	One year (renewable)	Open to qualified graduates	The Dean, School of Medicine, Western Reserve University, 2065 Adelbert Road, Cleveland 6, Ohio
SURGERY — UNRESTRICTED							
University of Toronto: Roscoe Reid Graham Travelling Fellowship	Surgery	Outside Canada	Unspecified	One, every three years	Unspecified	Open to graduates who have completed three years of postgraduate training	Professor of Surgery, Faculty of Medicine, University of Toronto, Toronto 5, Ont.
George Christian Hoffman Beta Fellowship	Surgery	Europe or United States	Approx. $685	One	One year	Open to recent graduates of Queen's University. Awards will be made on the basis of composite standing in the last three years of the course leading to the M.D. degree	Secretary, Faculty of Medicine, Queen's University, Kingston, Ont., by March 1
TROPICAL MEDICINE AND HYGIENE — UNITED KINGDOM							
Andrew Balfour Memorial Studentship	Tropical medicine and hygiene	London School of Hygiene and Tropical Medicine	Tuition	One or two	Usually five months (the duration of the diploma course)	Available to nationals of all countries; usually awarded to medical practitioners eligible to attend the course for the diploma in tropical medicine and hygiene (England)	London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
TROPICAL MEDICINE AND HYGIENE — UNRESTRICTED							
London University (London School of Hygiene and Tropical Medicine): Wandsworth Scholarship	Research in tropical medicine and hygiene	Unspecified	Variable plus overseas allowance	Unspecified	One to three years	None given	The Dean, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
London University (London School of Hygiene and Tropical Medicine): Avebury Memorial Fund	Research work in entomology	Unspecified	Unspecified	Unspecified	Unspecified	Income of Fund available for studentships or grants for research work	The Dean, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
London University (London School of Hygiene and Tropical Medicine): Dalrymple Scholarship	Original research in tropical medicine	Unspecified	Unspecified	One	One year	Candidates must be of British birth or parentage	The Dean, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
London University (London School of Hygiene and Tropical Medicine): Mansfield Aders Scholarships	Entomology or parasitology	Unspecified	Available for grants	Unspecified	Unspecified	None given	The Dean, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
London University (London School of Hygiene and Tropical Medicine): Edward John Stanley Memorial Fund	Research work in tropical diseases	Unspecified	Unspecified; grants made from time to time	Unspecified	Unspecified	Income of Fund is applied periodically, at the discretion of the Board of Management, in aid of specific research work	The Dean, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, England
TROPICAL MEDICINE — UNRESTRICTED							
Tropical Research Fellowship	Ill-health in the tropics	Any approved university hospital or medical school in British Commonwealth (some part of tenure must be spent in tropics)	£1650 to £2050 per annum	One	Two to five years	Open to graduates; offered about every 2-5 years	The Assistant Secretary, The Royal Society, Burlington House, London, W.1, England

(To be continued)

OBITUARIES

DR. JOHN A. I. ALTON, 73, former town councillor and mayor of Lamont, Alberta, died May 7 at his home. Born in Ontario in 1888, Dr. Alton moved to Fort Saskatchewan with his family in 1900. He was educated in Edmonton and graduated from the University of Toronto Medical School in 1918.

Following army service overseas in World War I, Dr. Alton opened a practice in Waskatenau. Later, he moved to Lamont where he practised until his retirement three years ago.

Active in many local organizations, Dr. Alton was recently honoured with a life membership by the Alberta College of Physicians and Surgeons and also by the Canadian Medical Association, Alberta Division.

He is survived by his widow, two daughters and a son, Dr. J. D. McGregor Alton of Edmonton.

DR. STANLEY S. BALL, 70, York County coroner for over 30 years, died May 18 at the Toronto General Hospital. A graduate of the University of Toronto Medical School in 1915, Dr. Ball established his practice in Stouffville, Ont., in 1919. He later became medical officer of health and a member of the York County Medical Board.

Dr. Ball was active in local politics, an interest he inherited from his father, the late Robert J. Ball, who had been a Member of Parliament for South Grey County. He served overseas in World War I with the 10th London (England) Regiment and after his return to Canada became commanding officer at the Whitby Military Hospital.

He is survived by his widow and two daughters.

DR. THEODORE H. COFFEY, 56, professor of physical medicine at the University of Western Ontario and head of the physiotherapy department, Victoria Hospital, London, Ont., died at the hospital on May 10.

Born in Moncton, N.B., Dr. Coffey received a diploma in physical education from Harvard University School of Education in 1931. He graduated from Queen's University Medical School in 1939 and interned at Kingston and Saint John, N.B. In 1946 the Royal College of Physicians and Surgeons of Canada awarded him specialist certification in physical medicine. Later, he became director of athletics and physical education at the University of New Brunswick and Queen's University.

Dr. Coffey served overseas in World War II with the Royal Canadian Army Medical Corps and was in charge of Physical Rehabilitation, No. 1 Convalescent Depot, England. In 1945 he was appointed lecturer in physical rehabilitation for the Ministry of Health in Britain.

Surviving Dr. Coffey is his widow.

DR. DONALD GORDON COGHLIN, 45, died at his home in Brandon, Man., on May 13. Born in Strathclair, he received his B.Sc. in 1937 and graduated in medicine in 1942 from the University of Manitoba. About two years later he began practice in Winnipeg with Dr. F. G. McGuinness, in obstetrics and gynecology. He went to London in 1951 for postgraduate work and on his return worked with the Manitoba Sanatorium Board at Assiniboine Hospital in Brandon, where he became chief of the department of internal medicine. Dr. Coghlin took a keen interest in the rehabilitation of Indian and Eskimo patients and was active in community life as Past President of the Brandon and District Medical Society; Medical Director of the Western Manitoba Division, Canadian Arthritis and Rheumatism Society; Vice-President, Children's Aid Society; Surgeon-Lieutenant, Royal Canadian Sea Cadets; and as a member of Brandon Rotary and of the Brandon Lodge, A.F.&A.M.

Warm-hearted and generous, he will be greatly missed. He is survived by his widow and a daughter.

R.B.M.

DR. RODERICK J. MACDONALD, 103, Canada's oldest physician and oldest senior member of the C.M.A., died as he had lived, peacefully and quietly, on June 4 at St. Peter's Bay, P.E.I.

Known to his patients and friends as "Dr. Roddie", Dr. MacDonald received many honours, the most distinguished, a knight of St. Gregory the Great, bestowed on him by Pope Pius XII in 1952 for medical service to humanity.

During the years he worked among Prince Edward Islanders, Dr. MacDonald delivered an estimated 4000 babies—more than 10 times the present population of his village. Many of these attended a party honouring his 100th birthday.

In 1958 the Canadian Medical Association paid tribute to him as a colleague and humanitarian. Dr. Morley A. R. Young, then president of the Association, commenting on Dr. MacDonald's length of medical service, said . . . "it is a special achievement, considering that he has completed over 70 years in the practice of medicine."

Once he was reluctantly enticed into entering politics and was elected to the provincial legislature as a Conservative. To his delight he was defeated in the next election. "They never got a chance to defeat me again," was his reaction.

Dr. MacDonald was born at Maple Hill, P.E.I., in 1858. He was educated in local schools and, after graduation, taught in provincial schools until he had accumulated sufficient funds for a medical education.

In 1888 he graduated from Trinity College Medical School, Toronto, and the same year opened his first and only practice in St. Peter's Bay. He continued to tend the sick in his native province for more than 70 years. His only recompense . . . "I have lived in quietness, let me die in quietness."

And this he did.

Dr. MacDonald is survived by his six children, four sons and two daughters.

DR. ROBERT Y. PARRY, 87, former Hamilton, Ont., city coroner and president of the Hamilton Academy of Medicine, died on May 6. He had practised in Hamilton since 1903, three years after graduation from medical school. Dr. Parry served in South Africa during the Boer War as medical officer attached to No. 10 Canadian Field Hospital.

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PUBLIC HEALTH

SURVEILLANCE REPORT OF EPIDEMIC OR UNUSUAL COMMUNICABLE DISEASES

INFLUENZA

Influenza virus A2 isolations have been reported from 3 cases in Goose Bay, Labrador (see Surveillance Report of April 8, 1961) and 2 cases in Edmonton, Alberta.

An outbreak of influenza-like illness has been reported during the middle of April in several camps at Cape Dorset, N.W.T. About one-third of the total population (450 Eskimos and 20 whites) have been affected and two deaths have occurred, both in adult females.

The influenza-like illness outbreak reported at Cape Dorset has spread, during the third week of April, into the Pangnirtung region. About 50 cases and 3 deaths have been reported in a population of 500 Eskimos and 20 whites. All but four of the white population have been ill.

Influenza-like illness has been reported during the third week of April in the town of Inuvik, N.W.T., and in the hostels—53 cases at the R.C. Hostel, 53 cases at the Anglican Hostel and about 30 cases in town.

An increase in influenza-like illness has been reported in the Argenteuil Health Unit, Quebec. Absenteeism in industry increased last month from 2.5 to 3.6%. One of the chief industries reported an absenteeism of 5% during the second week in April.

INFECTIOUS HEPATITIS

In the last six months, 14 cases of infectious hepatitis have been reported from Bellis, Alberta, among a population of about 700. Most of the cases occurred among school children. It is felt that this report illustrates the length of time that an outbreak of infectious hepatitis can linger.

DIPHTHERIA

Two cases of diphtheria have been reported at the Indian Reserve, Glenboro, Man., in a family of five children. Both were non-immunized and one of them, a four-year-old child, died.

TRACHOMA

One case of trachoma has been reported from Lake Cowichan, British Columbia.

TETANUS

One case of tetanus in a middle-aged woman has been reported from Oak Bay, British Columbia.

BOTULISM

One case of botulism was reported on April 23, 1961, from Bilpin (near Grand Forks). The patient, a 55-year-old man, died on April 24.

International Reports

SMALLPOX

Federal Republic of Germany

The third non-imported case of smallpox has been reported from Ansbach (Bavaria). The physician who attended the previous cases fell ill on April 22, 1961, and smallpox was confirmed on April 26. He had been vaccinated on March 29 and isolated on the following day.

Epidemiology Division, Department of National Health and Welfare.

Ottawa, May 6, 1961.

BOOK REVIEWS

MODERN TREATMENT YEARBOOK 1961. A Yearbook of Diagnosis and Treatment for the General Practitioner. 27th ed. Edited by Sir Cecil Wakeley. 310 pp. Illust. Baillière. Tindall & Cox, Ltd., London; The Macmillan Company of Canada Limited, Toronto, 1961. $6.00.

In this, the 1961 edition of the "Modern Treatment Yearbook," the 31 topics chosen for discussion cover a wide variety of subjects in the fields of surgery, obstetrics, pediatrics and medicine. Among other subjects discussed are urological emergencies; subdural hematoma; oral treatment of diabetes mellitus; Bell's palsy, breech presentation, treatment of depression; early diagnosis and treatment of cancer of the cervix.

The book is well written and easily read, and gives the latest treatment of the conditions discussed. Its greatest field of usefulness would be as a refresher course rather than a reference book.

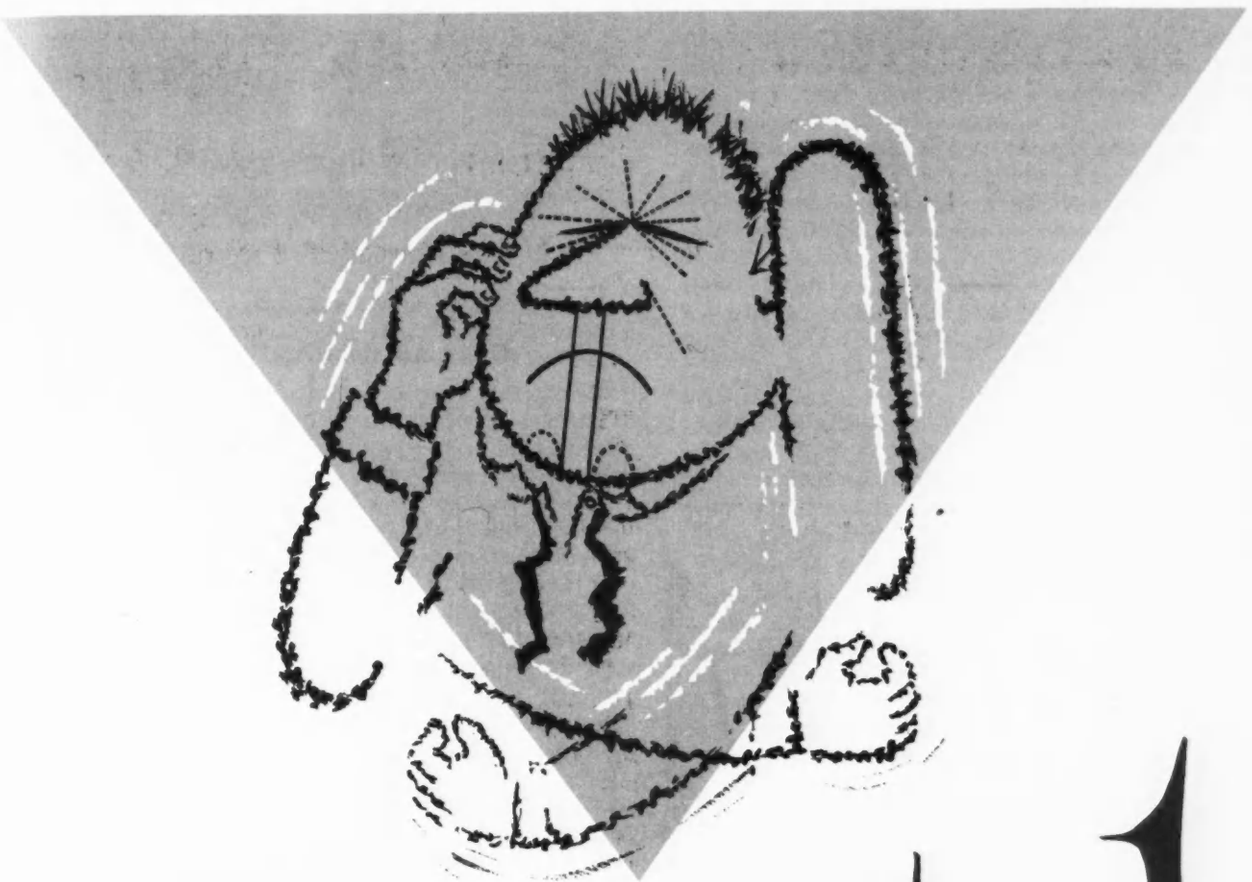
MY FRIENDS THE DOCTORS. Sigmund L. Wilens. 243 pp. Longmans, Green & Co., Toronto, 1961. $5.75.

This book by Sigmund Wilens, a well-known American pathologist, is written "in redress of slights and misapprehensions". He sets forth his views on pathology, pathologists, surgeons, internists, researchers, medical students and journalists in a fluent, informal, sardonic and very entertaining way. Dr. Wilens has found a widespread misunderstanding of the pathologist and his work among lay persons and even among many of his medical colleagues. He considers the term "doctor's doctor", sometimes used of pathologists in the press, to have an uncomplimentary connotation in the sense of "gentleman's gentleman". While the pathologist's services are for the good of sick people, like those of the surgeon and the internist, certain doctors, he maintains, get the feeling that the pathologist performs services for them personally and likes to refer to the pathology department as a "service" department, thus downgrading the pathologist to the position of a sort of medical servant.

The author has some critical things to say about young up-to-date pathologists, mainly laboratory managers, who have replaced the older breed, well grounded in the discipline of pathological anatomy, who if not "protected like the whooping crane or the buffalo" are likely to become extinct. He deplores the lack of interest among clinicians in attending autopsies on their patients and attributes a deterioration in autopsy techniques among prosectors partly to this and partly to an influx of expatriate pathologists during the 1930's, who were wont to defend their sloppy ways by remarks as "Ah, zees is zee method at zee great Rokitansky." Dr. Wilens is favourably disposed to undergraduate medical students but has a chapter entitled "My Bitter Enemies the Residents". In this he states that he does not object to the boys in white as persons, but to "their transient doctorial pubescence . . . complicated by an acneiform eruption of complaints", and characterized by a pride which occasionally delays the admission of ignorance or inexperience to the detriment of the patient.

The book covers a great deal of territory and is packed with sharp comment on a variety of subjects

(Continued on page 57)



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(Continued from page 54)

within the medical sphere. This reviewer admits that Dr. Wilens is never very wide of the mark and often bang on target. It is difficult to believe that the author in his own professional career did not hold his own very adequately in the rough and tumble of university and hospital life. Hence it is a little puzzling to note the rueful tone of some of his chapters.

FACTS FOR CHILDLESS COUPLES. 2nd ed. E. C. Hamblen. 130 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. $4.75.

This book of 130 pages represents a very comprehensive outline of all the anatomical, physiological, biological, psychological and therapeutical aspects which elucidate the whole complex problem of human infertility. The advantage of this book in comparison with others of this type lies, perhaps, in the fact that the author incorporates aspects of the nature of several newer biological phenomena, in this way bringing it very much up to date. Finally, the author's authoritative name in this field, and clear style governing the chapters of this book, make it a most valuable contribution within the modern literature on infertility.

However, it is not quite clear whom this book has been written for. As the author says on page 104, "This book seeks to orient the couple, not . . .". But is there a sufficiently large group in a random population who have enough training in anatomy, biology and chemistry not only to engulf the vast information given in this book but also to apply it to their own case without getting "mixed up"? On the other hand, for training gynecologists who work in the field of infertility, many problems and suggestions with which they may not be sufficiently familiar are merely mentioned or touched upon, necessitating other textbooks for complete information as to their applicability, prognosis, etc. An example of such are the newer methods of inducing ovulation by the use of hormones.

A third group of readers might be the general practitioner and the doctor in a specialty other than gynecology. For those, this book would appear to be too lengthy and inappropriate, since they would not be familiar with the specialized gynecological work touched upon.

However, if this book is written more for the benefit of childless couples, emphasis should be placed on the fact that "competent medical counsel" would advise them to choose a gynecologist who has a special interest in infertility.

CLINICAL CHILD PSYCHIATRY. Kenneth Soddy. 470 pp. Baillière, Tindall and Cox, London; The Macmillan Company of Canada Limited, Toronto, 1960. $7.15.

The author disagrees with the commonly employed diagnostic system of symptoms and signs currently in use in textbooks on child psychiatry and outlines a system of diagnosis and etiology based on crucial happenings during the specific developmental stages of a child's life. The book opens with a discussion of the influences of heredity, culture, economics, social class, family life, gestation and parturition in a broad informative fashion. There are brief but interesting chapters on examination, disposal and treatment at the end of the book.

The book's uniqueness comes from the author's ideas about difficulties beginning in the nursing and toddler stages that until recently have received scant attention. According to the author, first-year difficulties tend to be generalized, affecting every aspect of subsequent development and originating in the infant's impaired ability to establish a firm interpersonal relationship with the mother. Failure in this development results in the primitive psychosis of childhood, such as autism and hyperkinesis, the latter condition being characterized by restlessness, failure to learn and repetitive uncomprehending exploration of the body. There may be accompanying difficulties such as failure of spatial orientation.

During the second year difficulties tend to be more localized, as for instance, the child's inability to control his feelings or aggressivity. The author classifies second-year reactions according to basic in-turning or out-turning patterns in relation to people. To these basic tendencies he adds a third reaction, one of inhibition as a response to emotional stress.

There are other chapters on subsequent phases of development, Oedipal, latency and adolescence. The author uses the basic Freudian framework to describe these phases with some modification. The author would add a third instinctive force tending in the direction of socialization to those postulated in psychoanalytic theory.

The book is illustrated liberally with case histories to demonstrate the theories presented. It is difficult, however, to draw the author's etiological conclusions from the case material he presents.

The book expounds a theoretical schema. There are few references and it does not, in the reviewer's opinion, fulfil any of the criteria of a textbook in child psychiatry as the title suggests. Ideas on early child development are interesting because of the focus on a period that in the past has been neglected. The book probably suffers because the author has attempted to oversimplify an enormously complex field.

CLEFT LIP AND PALATE REHABILITATION. William H. Olin and Duane C. Spriestersbach. 194 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. $10.00.

The preface states that this book had its inception as a result of "many inquiries received" regarding the methods used in the rehabilitation of patients with cleft lip and palate, at the clinic attached to the State University of Iowa. No mention is made of the specific group from whom these inquiries originated. One gets the impression, on perusing the book, that it is intended for a wide and general audience.

The book gives a general outline of the rehabilitation methods used for these patients at the State University of Iowa clinic and presents examples of illustrative cases. No really new, unusual or controversial material is presented. It is surprising that, in the chapter on surgical treatment, no mention is made of Tennison's procedure or variants of it.

It is doubtful if this book will be of any great value to clinics already handling similar cases. It would possibly be of some use to hospitals looking after a few patients with this type of disability, as it provides some idea of the possibilities for rehabilitation in this field. The fact that these patients require the care of multiple specialists for maximum rehabilitation is well emphasized. The cost of the book would seem a bit high, though this is due to its numerous illustrations.

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CLINICAL USE OF RADIOISOTOPES. A Manual of Technique. 2nd ed. Edited by Theodore Fields and Lindon Seed. 475 pp. Illust. Year Book Publishers, Inc., Chicago, Ill., 1961. $10.50.

Based on experience with the use of this book in connection with research work at a university, and practical clinical tests at hospital level for the past two months, one would say that this is by itself the most completely informative available treatise on the clinical use of radioisotopes. The greatest compliment is to be found in the fact that we are always having to refer to it for more details than are otherwise obtainable from the other five or six similar books.

On the other hand, it is set out in a more advanced fashion than the several other books on the subject, so that it is of greatest value to the advanced practitioner in isotope therapy, rather than to the beginner or to the isotope technician. The reviewer was not able to find any aspect of clinical isotopology which was not covered in complete fashion in this book but, as mentioned before, it is not always as easy to refer to a specific test or subject as in some other types of publication.

On the whole, however, this book cannot be recommended too highly, for it is complete in all aspects and the authors are not too dogmatic about the specific test to be used—an important point, since much has yet to be learned as to the specific radioisotope test that is best for the particular patient under study.

One would rate it therefore in the highest category for use by advanced technologists or clinicians practising radioisotopology.

TRENDS IN JUVENILE DELINQUENCY. World Health Organization Public Health Papers No. 5. T. C. N. Gibbens. 56 pp. World Health Organization, Geneva; Columbia University Press, New York, 1961. $0.60. Also published in French.

The World Health Organization has for some years taken an active interest in the problem of juvenile delinquency. In 1949, at the request of the United Nations, WHO carried out a study of the psychiatric aspects of the origin, prevention and treatment of juvenile delinquency as a contribution to the United Nations program for the prevention of crime and treatment of offenders. Since the publication of that study, representatives of WHO have taken part in many conferences and have regularly attended meetings of the United Nations' Consultative Group on the Prevention of Crime and Treatment of Offenders. In 1959, again at the request of the United Nations, another study was carried out by a psychiatric consultant—Dr. T. C. N. Gibbens—appointed by WHO to complement the earlier study with a review of current trends in juvenile delinquency.

This consultant's report, which was submitted to the Second United Nations Congress on the Prevention of Crime and Treatment of Offenders, has now been published, with some minor amendments.

The new forms or manifestations of juvenile delinquency which are at present discussed in the various countries of the world consist partly of delinquent acts which are a consequence of new opportunities for crime, but which do not differ in their essential character from more traditional forms, and partly of offences which appear to reveal a more fundamental change in behaviour, or the participation of sections of the community which have not previously been involved in crime. It is with these newer forms that the author is primarily concerned in his review of social changes, changes in family life and in the individual delinquent, special property offences, sexual offences, wayward girls, violent offences, alcoholism and drug addiction, and hooliganism.

He also discusses present trends in prevention, paying particular attention to the development of prediction studies designed to identify young children who are in danger of being seriously delinquent in the future and to the tendency to design preventive programs in such a way that their results can be scientifically evaluated.

A chapter on treatment deals with diagnosis, treatment at liberty and institutional treatment.

LEHRBUCH DER INNEREN MEDIZIN (Textbook of Internal Medicine). Edited by Helmut Dennig. 901 pp. and 995 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1960. $12.85 per volume.

This German textbook, based on profound knowledge and wide clinical experience, is in its fifth edition and has been extensively revised. Many chapters have been rewritten in order to keep pace with progress in medicine. The text is divided into 13 subject groups, the discussion of which is preceded by short introductory paragraphs on history, anatomy and physiology.

The section on infectious diseases is especially well written. Emphasis is placed on examinations and tests enabling the doctor to arrive at an early etiological diagnosis with a high degree of probability so that specific therapy can be instituted at once, while confirmatory laboratory results are awaited. The chapter on poisoning is of great practical value. It begins with a general discussion of all aspects of the subject, including industrial, accidental and criminal poisoning. This is followed by an alphabetical list of poisonous substances with a detailed description of diagnostic and therapeutic measures. One of the highlights of this book is the exhaustive section on neurology. Psychosomatic disorders are dealt with only briefly in an appended paragraph at the end of the second volume.

The reviewer was surprised to see aminopyrine still recommended in a book of this calibre.

The publishers are to be congratulated on the excellent reproduction of illustrations and x-ray photographs and the exemplary typography.

Recent graduates, general practitioners and internists who can read German will find this book a valuable addition to their libraries.

THE OPERATIONS FOR INGUINAL HERNIA. Contributions of Bassini, Halsted, Andrews, Ferguson and Lotheissen and a Current Recommendation. Edited by Mark M. Ravitch and James M. Hitzrot, II. 64 pp. Illust. The C. V. Mosby Company, St. Louis, Mo., 1960. $4.00.

This, essentially historical book is well written and easy to read. It describes, with references to the original articles, the techniques of hernial repair developed by Bassini, Halsted, Andrews, Ferguson and Lotheissen. This review of these techniques is instructive and helpful to those working in this field. It is recommended as a pleasant, informative book for those interested in this subject.

(Continued on page 62)

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Reference:

Intravenous Heparin—Its role in the Management of Acute Thromboembolic Diseases.

W. Ford Connell and George A. Mayer
Applied Therapeutics, May 1960, Vol. 2, No. 5, 371-375.

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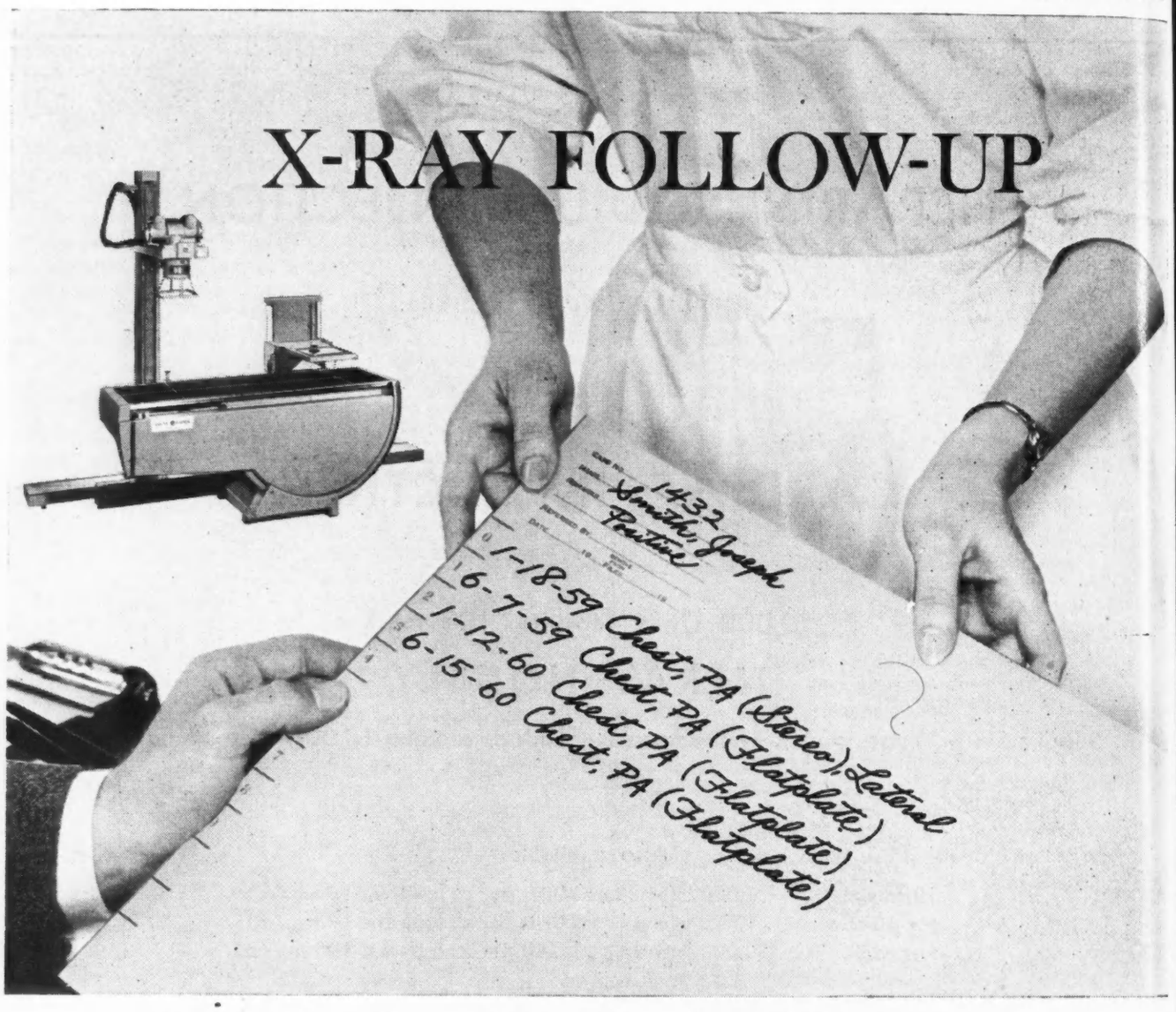

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†Council on Drugs: New and Nonofficial Drugs. Philadelphia, J. B. Lippincott Co., 1960, p. 732.

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Canad. M. A. J.
July 1, 1961, vol. 85

(Continued from page 58)

THE CUTANEOUS MANIFESTATIONS OF THE BENIGN INFLAMMATORY RETICULOSIS. American Lecture Series. Edited by Samuel M. Bluefarb. 408 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. $15.50.

This is one of five volumes in a series of monographs on the diseases of the reticuloendothelial system, which is surely one of the most difficult and least understood realms of clinical and pathological medicine. Certain chapters have been contributed by outstanding colleagues of the eminent author. Previous volumes have dealt with the granulomatous and malignant reticuloses. The present volume discusses the inflammatory hyperplasias (histiocytoma, juvenile xanthogranuloma, reticulohistiocytoma, lymphocytoma cutis, and granuloma faciale) and the infectious hyperplasias due to virus (infectious mononucleosis, lymphogranuloma venereum, cat scratch disease) and fungus (histoplasmosis).

The title is misleading inasmuch as each item contains a thorough but comprehensive review of the history, etiology, pathology, clinical and laboratory aspects, prognosis and treatment for each entity just named. The appeal of this book should therefore be much wider than the field of dermatology, for this is one of the most lucid and useful accounts to be found in modern medical literature. The author's tireless efforts have mobilized his knowledge and dedication in producing a meaningful classification of this highly complex group of diseases.

Dr. Bluefarb's monographs are already classics, and we perceive still another dermatologist making major contributions to those diseases which have often been actively or passively relegated to a predominant position in other specialties. This volume makes it clear that a well-trained dermatologist should be the primary source of knowledge and opinion in the reticuloendothelial diseases, just as he has been and still is for many other maladies with systemic manifestations, including syphilis, erythema nodosum, sarcoidosis and lupus erythematosus.

The presentation of the book is magnificent, both clinical and histopathological illustrations are well chosen, and the bibliography is monumental (not in quantity but in quality and pertinence). The book should be readily available for anyone who requires concise working knowledge about these important diseases.

DIE CHIRURGIE DES MAGENSARKOMS (The Surgery of Sarcoma of the Stomach). Dr. A. Gütgemann and Dr. H. W. Schreiber. Vol. VIII. 95 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1960. $6.80.

Not since the article by Konjetzny, in 1921, has there been a thorough review of the problem of sarcomatous lesions and benign tumours of the stomach. The authors' monograph is based on a review of 732 histologically verified cases of sarcoma of the stomach. According to the authors, the incidence of this condition is 2% against 96.2% for carcinoma of the stomach and 1.8% for benign tumours, but may be as high as 7.4% (Thorbarjarnason, 1959). Of the sarcomas of the gastrointestinal tract, 70% are of the stomach, 16% are of the small intestine, 6% of the lower end of the esophagus, 6% of the colon. The disease is more common in men than in women (60:40) and is found in all age groups; the average age of the patient is 49 years for sarcoma and 59 years for carcinoma. In about 23% of cases it is in the pyloric end, in 20% on the greater curvature side, and in approximately 20% it is present in a diffuse infiltrating form.

The authors differentiate between localized sarcoma, in the forms of leiomyofibrosarcoma and neurogenic sarcoma, and the infiltrating type, in the forms of lymphosarcoma, reticulum cell sarcoma and lymphogranuloma. A third group comprises the combined forms of localized tumour and infiltrative type. They state that the path of spread is the perigastric nodes, the lymph nodes of the liver and retroperitoneal space, the liver, the bowel, the pancreas, the radix of the mesentery, the kidneys and lastly the lungs and mediastinal lymph nodes, in this order.

The diagnosis is made by x-ray examination demonstrating the exogastric origin of the lesion and the endogastric tumour, which usually appears as multiple defects resembling polypi. In the infiltrating form, thickening of the rugal folds resembling giant hypertrophy of the gastric folds is frequently demonstrated. The diagnostic value of radiation therapy in the lymphoreticular form of the sarcoma of the stomach is doubtful. Gastroscopy with biopsy if successful is of great value. Exfoliative cytology proved successful in two of four cases examined by Papanicolaou. The authors believe that a diagnosis of sarcoma of the stomach is possible if the following features are noted: middle age, good general condition, complaints of severe stomach pain, anemia, palpable mass in upper abdomen, nausea and suspicious x-ray findings.

The results of the present surgical treatment of sarcoma of the stomach based on a cumulative review of the world literature show a five-year cure of 22.4%, according to the authors, against a 17.5% five-year cure in carcinoma of the stomach (Winkelbauer).

The authors believe that all types of sarcoma of the stomach should receive postoperative radiation therapy. Radioactive isotopes (P^{32}, Na^{24} and Au^{128}) have not proved to be of therapeutic value.

This short but well-written monograph dealing with the relatively rare but not too often thought of malignancy is highly recommended reading to the physician, surgeon and radiologist. The literature is thoroughly reviewed and the reader brought up to date.

THE PATHOLOGY OF IONIZING RADIATION. A Monograph in The Carl Vernon Weller Lecture Series. Shields Warren. 42 pp. Illust. Charles C Thomas, Springfield, Ill., 1961. $3.00.

Shields Warren is an authority on this subject which, in the present "atomic age", should be of general interest. However, this 44-page booklet lacks organization, presumably because it is based on a lecture. It is a presentation of facts and hypotheses, without any subdivisions or headings.

Among the subjects discussed are: the mechanism of cell and tissue damage by radiation; the alterations of hemopoietic tissues, germinal epithelium, gastrointestinal tract, vessels and endothelium, and of connective tissue; partial and whole-body radiation; intrauterine effects of radiation; radiation of neoplasms; carcinogenic effects of radiation and radioactive fallout.

The book can be recommended for those who want a very short review of the pathology of ionizing radiation.